CHILDREN'S AND PARENTS' PERSPECTIVES OF A SUPPORTIVE ENVIRONMENT FOR ACTIVE TRAVEL TO SCHOOL

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ABSTRACT

Active Travel to School is a term used to refer to any mode of travel that uses physical activity to go to school such as walking and cycling. Despite its demonstrated physical, developmental and sustainable benefits and after years of nationwide policies, strategies and schemes in place to increase it, the shift towards Active Travel to School in the UK has been negligible, and car use and road traffic have not declined. Within this context, this PhD research was funded by the EPSRC under a linked studentship to the ongoing VISIONS2030 project which explored the current dependency on motorised travel and how walking and cycling could be encouraged in the future. This research contributes to the project by examining the factors that influence Active Travel to School and by bringing the perspectives of the group of parents and children about a supportive environment for it to the study.

Underpinned by the Interpretivist and Social-constructivist paradigm, the research adopted a qualitative survey approach in which 130 participants were involved through a range of interactive and novel participatory methods designed and implemented through focus groups, activity groups and semi-structured interviews carried out at schools and households from urban areas.

The results show key factors acting as both barriers and enablers: despite perceptions that car use has many advantages for families and that Active Travel to School is not viable under current safety conditions, there is a substantial potential for a shift into an active travel culture that can be achieved through five different but simultaneous approaches in policy by: “Creating an easy, pleasant, safe and barrier free physical environment”, “Creating a social environment for active travel”, “Providing a supportive public transport”, “Convincing people of its benefits through promotion, incentives, education and innovations” and “Imposing restrictions to the use of private vehicles”.

CHAPTER 1: INTRODUCTION

The introduction to this thesis is presented in this, the first chapter, which discusses the context and explains the reason for this research into active travel to school. The methodological model adopted by this research, which places the research questions at the heart of the research design, is presented. The research problem, aim and objectives are also summarised. Finally, the structure of the thesis is outlined at the end of this chapter.

1.1 Why do research on active travel to school?

Active travel to school (ATS) is a term used to refer to any mode of travel that uses physical activity to go to school, such as walking or cycling. Although both modes are fundamentally similar, as they involve the human body as a power system and are vulnerable and exposed to the weather, they have different roles and requirements. For example, walking is the most ubiquitous form of movement, open to almost everybody and constitutes the majority of trips for non-car owners, women and children (Hillman et al, 1973 and Barton 1998). Walking is also the most important mode in terms of number of trips or part-trips, as many motorised trips involve a walk at one end, and about a quarter of all trips are within walkable distance (one mile or less) and 42% are within two miles (less than the average length of a cycling trip) (DfT 2009). Cycling is a less common activity because it involve significantly more physical effort than driving or using public transport, and also requires a degree of learning and confidence and usually a surfaced road (Gatersleben, 2012; Newton et al., 2011; Gatersleben and Uzzell, 2007); however, cyclists typically cover greater distances than walkers.

As travelling from home to school and back is a daily activity (during school term) and most school journeys in the UK are within a distance of less than 2 miles, active travel to school is considered beneficial for its physical, developmental and sustainable aspects.

1.1.1 Physical health benefits

Active travel to school is considered an ideal way for children and their parents to become more active (Sustrans 2010a). Current approaches of policies and strategies to tackle obesity in the UK consider schools to be a logical and practical target to improve children's physical health by increasing their physical activity (Sustrans, 2007). Physical activity is

defined by Caspersen et al. (1985), as ‘any force exerted by skeletal muscle that results in energy expenditure above resting level’ and it is recommended that children should have at least 60 minutes of moderate to vigorous physical activity per day at least twice a week; as moderate-intensity activity increases breathing and heart rates to a level where the pulse can be felt and the person feels warmer and sweats (NHS, 2009). Walking or cycling could become a moderate to vigorous intensity activity, that if practised in a number of short 10-minute minimum bouts, produces high physical stresses that improve bone health, muscle strength and flexibility (NHS, 2009).

1.1.2 Child development benefits

Active travel to school contributes to a child’s development, as it gives the opportunity to experience ‘being’ in the street environment and this is a central part of a young person’s separation from childhood and transition to adulthood (Matthews, 2003). In the street environment, children learn about the world and construct their identities (Ward, 1978; Appleyard, 1981). Children learn by playing through the environment and by sharing spaces and building relationships and bonds in their neighbourhood (Dargan et al., 2006) and those playful and spontaneous interactions with their environment and other people help children to develop human competence (Hart, 1979 and Moore, 1986). Independent journeys by active travel modes have been found to help in building children’s self-esteem and creativity (Kegerreis, 1993; Noschis 1992). Learning to make journeys independently and to take responsibility for personal safety is an essential part of growing up (Kay et al, 2011). The safety and accessibility of the urban environment has been considered as a key factor, not only in children’s daily lives, and healthy development and participation in society, but in the development of their environmental identity and consequently in the formation of what is denominated as the ‘landscape of childhood’ by Sebba (1991) and Godblatt (2007).

1.1.3 Sustainability

Active travel modes are also more sustainable ways of transport (Sustrans 2007) and it is suggested that encouraging children earlier in their life could provide an opportunity to modify travel behaviour and alter the travel habits of the next generation (Sustrans 2010b; London Councils 2008; Osborne 2000). As an alternative to car use, walking and cycling has the potential to reduce road transport, which contributes to about 70% of the air pollution in UK towns and cities (House of Commons 2009). Traffic pollution damages bio-diversity; local climate; degrades the built environment and has a great impact on health

(House of Commons 2009). Evidence suggests that air pollution is responsible for a high number of hospital admissions each year and the premature deaths of thousands of vulnerable people such as children (Cycling England 2010). Even small changes in active travel to school could have the potential to reduce road transport and consequently reduce overall fuel energy use, congestion, contamination and pollution (Barton, 1998).

1.1.4 Current trends in active travel to school

Despite all the above physical, developmental and sustainable benefits that active travel to school provides, over the past four decades, the journey to school for children has undergone significant change; car use has doubled over the past generation between children aged 5-10 and road traffic grew by 80% in the last 30 years (Kay et al. 2011). Child participation in cycling declined by 50% over the past generation as parents and schools have withdrawn from the road. This means that in the UK, just 2% of journeys to school are made by bicycle (Sustrans 2010a) compared to places such as Denmark or the Netherlands where over 50% of journeys to school are made by bicycle (Osborne 2000). Similar to cycling, the amount of walking to school done by children has decreased. According to the National Travel Survey (NTS, 2011), in 1995/97, just over half (53%) of trips to school by children aged 5 to 10 were made on foot and 38% were made by car; by 2011, the number of trips by foot had reduced to 49% whilst the trips by car for these children increased to 43%. Among children aged 11 to 16, in 2011, 38% of trips to school were on foot and 22% were by car, compared with 42% and 20% respectively in 1995/1997. However, for secondary school children, the proportion of trips by bus was 33% and 3% were by bicycle in 2011 (NTS, 2011).

For trips to school under 1 mile in length, walking was the most prevalent mode of travel for both primary and secondary school children, accounting for 84% and 89% of trips respectively. For longer school trips, the prevalent mode of transport for primary school children is by car, with 76% of 2 to 5 mile trips, and 80% of trips over 5 miles made by this mode. For secondary school pupils, 53% of all trips of 2 to 5 miles in length, and 66% of trips over 5 miles are made by bus. Taking into account the distances from home to school, as shown in Fig 1.1, the proportion of children who walk to school and live between 1-2 miles from school reduces drastically compared to the percentage of those that live less than a mile from school in both groups: 5 to 10 year olds and 11 to 16 year olds (NTS, 2011). This brings consequences, for example, it has been argued that the children that have not walked to school at primary education level are more vulnerable when they walk to school at secondary education level, as they have less opportunity to develop road

safety awareness (Living Streets, 2008). Although education is the most frequent trip purpose for children aged 16 and under, 54% of their trips in total were made as car passengers in 2011 (NTS, 2011).

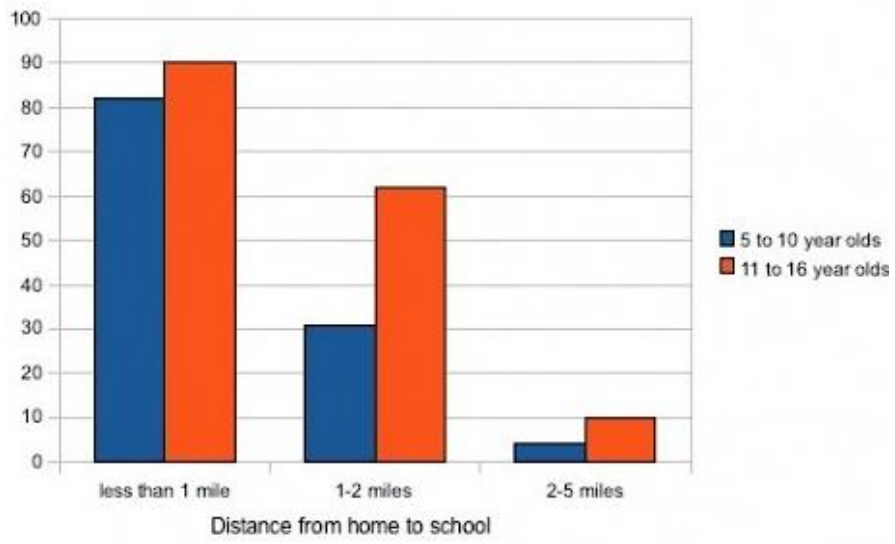


Figure 1.1: Proportion of children who walk to school within 5 miles, in the UK (Source: NTS, 2011).

1.1.5 Car use on the trip to school

According to The European Network for Cycling Expertise (2010), in many European countries including the UK, car use on the trip to school has been increasing for many reasons, such as

- Increased car ownership (including more cars per household) leading to increased car use
- The low status of the bike, compared to that of the car
- The increased distances to school, partly due to policies encouraging school choice or the closure of local schools in favour of larger, amalgamated schools
- An increased number of families in which both parents work, and an increase in the number of working single mothers, which means that children are brought to school by a parent on the way to his or her work
- The ease and comfort offered by the car for transporting both children and goods

As children are increasingly transported by car, traffic danger increases; and also conditions for active travel modes are made increasingly unpleasant, hence fewer children opt for them and a vicious circle is created (Osborne, 2000). It is considered that this

originates a ‘car-dependent culture’, which increases traffic that affects children’s safety, long-term development of independence; their ability to map out their environment mentally and also reduces their chance to get regular physical activity.

1.1.6 Traffic impacts

The increase of road traffic on residential streets has been associated with a decline in social interaction and street activity and has particularly affected children, as they are more likely to be involved in traffic accidents (Appleyard, 1981). Previous studies have demonstrated that due to their physiological stages, young children below the age of 10 have not developed the perceptual and cognitive skills necessary to handle modern traffic (Sandels, 1975). Although the UK has a poor record on the number of children killed or seriously injured, since the 1970s there has been a steady decrease in the number of children being involved in a serious traffic accident (Living Streets 2010). Nevertheless, this does not necessarily mean that conditions have improved as it can be attributed to the reduction in the number of children using the streets independently, particularly travelling to and from school (Living Streets 2010). Furthermore, every day, 28 children and young people are killed or seriously injured on British roads (Kay et al. 2011) and not only the most vulnerable to traffic, that is children below the age of 10, are affected, but also older children, as, according to accident statistics, child pedestrian casualties peak at the age of 13, whilst cyclist casualties peak at the age of 15 (DETR 1999a).

1.1.7 Loss of children’s independent mobility (CIM)

In addition, and despite being 11.9 million of children under the age of 16 (which accounts for 20% of the total population in the UK) children seem to be disappearing from the outdoor built environment, as their freedom to get about in their local neighbourhoods and travel to leisure, recreational activities and to school independently has decreased significantly in the past four decades, due in part to parental concerns about street safety (fears of assault or molestation 36%) (Hillman, 1990;) and fears about road traffic danger (59%) (NTS 2006); e.g., in 2010, only 25% of primary school children were allowed to travel home from school alone compared with 86% in 1971; older children aged 11 to 15 years old also face greater restrictions on their independence outside school hours (Shaw et al., 2013). Furthermore, children’s lives are more structured by adults and their physical boundaries have reduced. Nowadays, in urban areas, children stay in for longer at home, spending time in front of the TV, playing games or using computers or in ‘institutionalised settings’ such as school. Previous research charting children’s independent mobility over

three generations through a retrospective study, found that parents have been keeping their children under supervision for longer with succeeding generations (Davis et al. 1996; Kampmann, 2004). The loss of children's independent mobility (CIM); which has been defined as 'the extent to which parents allow their children to play and travel around in their local area without any grown-ups' (Shaw et al., 2013) had carried consequences, as it has affected children's ability to learn about outdoors and to orient, navigate and map out their environment mentally (Rivkin, 2006).

1.1.8 Health and environmental impacts

The loss of children's independent mobility has also been associated with increases in obesity (Whitzman et al, 2007). In the UK, the number of obese children has doubled since 1982; 10% of 6 year olds are obese, rising to 17% of 15 year olds (CTC 2009). In 1995 23% of children were considered overweight and by 2010 that number had reached 33% (Reilly 2009). The health impact of what is considered the 'obesity epidemic' could have lead to one million children being clinically obese in 2012 (DoH, 1999). In addition, it has been forecasted that based on current tendencies, by 2050, more than 60% of children will be overweight (Jackson and Harris 2006). Childhood obesity often leads to obesity in adulthood (DfES, 2003b, 4). There are further serious long-term health outcomes in both children and adults (NICE 2007): at least four of the top ten leading causes of death in high-income countries are directly related to physical inactivity: heart disease, stroke, cancer and diabetes mellitus (WHO, 2008). Research shows that chronic diseases such as coronary heart disease, type II diabetes and osteoporosis, for which physical inactivity and weight are risk factors, can begin in childhood (Sallis and Owen, 1999).

Road traffic also contributes to about 70% of the air pollution in UK towns and cities (House of Commons 2009), it damages bio-diversity, local climate and degrades the built environment, but its greatest impact is on health. Evidence from the Department of Health (1998) suggests that air pollution is responsible for 14-24,000 hospital admissions each year and the premature deaths of between 12-24,000 vulnerable people. Children living near busy roads have 50% increased risk of respiratory illnesses including asthma; and noise pollution can cause them sleep disturbance, increased cardiovascular risk, elevated stress and negative effects on learning and mental health (Kay et al., 2011).

1.1.9 Household impacts

Travelling to school by car not only increases traffic around school but can also impact overall household quality of life by adding trips or limiting the work schedule or job opportunities of a caregiver. According to McMillan (2003), while both mothers and fathers make a significant number of car trips solely for escorting children, mothers tend to make the majority of these trips up to their children reaching the age of 17. Women in households with children (regardless of marital status) also trip-chained (toured between places) more than did women in households without children and more than men (McMillan 2003). Considering that in the UK most school journeys are within a distance of less than two miles, the fact that the private vehicle has become the predominant mode of travel even for distances of less than a mile, makes this country one of the most car-dependents in Europe (Dellinger and Staunton, 2002).

1.1.10 The potential of focusing on the trip to school

The trip to school, therefore, as an everyday mobility activity, has significant implications not only for children but for the family, the community and the environment, and over the past twenty years, it has changed its structure reflecting the physical, economic, social and cultural environments that have taken place within British society (Stevens, 2010; Pooley, 2005). Consequently, the trip to school has become a high profile academic, public and policy issue surrounding childhood, transport, mobility and environmental sustainability, giving its potential for reducing car dependency and increasing rates of active travel, particularly for short journeys (Stevens, 2010). In this context, this PhD research was funded by the Engineering and Physical Sciences Research Council (EPSRC) under a linked studentship to a larger ongoing project: the Visions of the role of walking and cycling in 2030 project (VISIONS2030). The VISIONS2030 project explored the extent to which walking and cycling could replace current dependence on motorized travel and the ways in which people might be encouraged to use these active travel modes in the future. This PhD research contributes to the VISIONS2030 project by examining the factors that influence the travel to school experience and its modal choices; and by bringing the perspectives of the group of parents and children about a supportive environment for active travel to school to the study. In order to achieve this, the author of this research followed a methodological model that differs from most traditional ones: The Interactive Model of Research by Maxwell (2005).

1.2 The methodological model of this research

According to Rug and Petre (2007), 'research' can be defined as the exploration in the pursuit of knowledge; whilst according to Fellows and Liu (2007) 'methodology' refers to the principles and procedures of logical thought processes, which are applied to a scientific investigation. Thus research methodology can be considered as the overall research design used to address the research problem and to achieve the aim and objectives of the research. In this regard, Yin (1994 p.19) states, *"every type of empirical research has an implicit, if not explicit, research design"* but in practice, a researcher is faced with a variety of options and alternatives and has to make strategic decisions about which to choose. Traditional works on research design have understood "design' in different ways: some take designs to be fixed, standard arrangements of research conditions and methods that have their own coherence and logic, as with the 'experiment' design research, whilst other models resemble a flowchart with a clear starting point, a goal and a specified order for doing the intermediate tasks. However, Kulatunga (et al, 2007) argues that there is no 'one right' direction to take because the process of finding solutions to a research problem does not follow a clear sequential path, but often takes unexpected turns due to the uncertainties of the procedure and its outcomes. Furthermore, according to Maxwell (2005) it is difficult to represent the logic and process of qualitative research in such progression of stages or tasks, from problem formulation to the generation of conclusions or theory, that are necessary in carrying out a study; as in qualitative research, the design 'should be a reflexive process operating through every stage' of the process (Hammersley & Atkinson, 1995, p.24).

The Interactive Model by Maxwell (2005) adopted by this research offers a broader and less restrictive concept of 'design'. Within this model, which can be appreciated in Figure 1.2, seven components (research questions; the aim and objectives; the literature review and identification of the problem; the research philosophical paradigm; the strategy; the methods of data collection and analysis; the validity; and the ethical considerations) form an integrated and interacting whole, with each component closely tied to the others (rather than being linked in a linear or cyclic sequence), and each of them addresses a different set of issues that are essential to the coherence of a study. Maxwell calls it an 'interactive' model because every component of it may affect and be affected by one another and as it does not presuppose any particular order for its components or any necessary directionality of influence, it works only as 'an underlying scheme that governs functioning, developing, or unfolding" (Maxwell 2005, p 215). A model of the research journey, as per Maxwell's Interactive Model can be found in appendix A of this thesis.

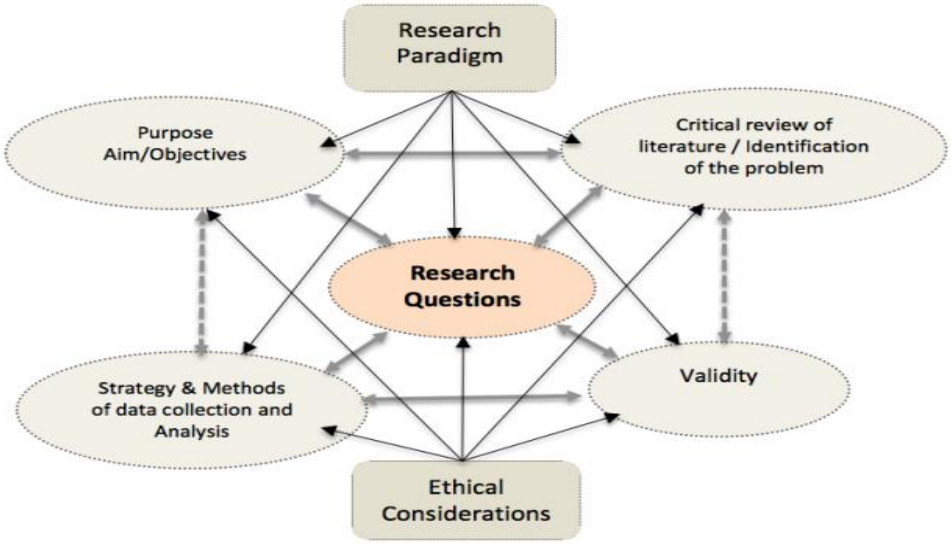


Figure 1.2: The Interactive Model of Research Design. (Source: Material Derived from Maxwell, 2005)

1.3 The research question

Instead of considering the research questions as the 'starting point' of the design, Maxwell (2005) places the research question at the heart of the research design in a qualitative study, as it "has an influence on, and should be responsive to, every part of the study" (p.225). The research question in this research involved an open-ended, inductive approach and served two main functions in this research design: it helped to focus the study in relation to the purpose, critical review of the literature and identification of the research problem; and it provided guidance on how to conduct the research, in relation to its strategy, methods and validity. Therefore, in the context of this research, the question posed at this stage is:

> *Can active travel replace current dependence on car use on the trip to school and in which ways could children and parents be encouraged to use more active travel modes in the future?*

1.4 The conceptual framework of the research

According to Maxwell (2005), in this part of the research, and through the study and critical review of the relevant literature, the key factors, concepts or variables and the presumed relationships among them are formulated. However, Maxwell argues that it is not only the

literature but also other conceptual sources such as unpublished work, pilot studies, etc. that may inform the research. In addition, Maxwell (2005) highlights, that this component of the research is 'constructed' and not 'found', because although the researcher incorporates pieces that are borrowed from elsewhere, the 'structure' is 'built' by the researcher. Therefore, Maxwell calls this the 'conceptual framework' and also includes the research problem in it. In this respect, through the critical review of the relevant literature and other published and unpublished work for this PhD research, it was established that giving the potential for reducing car use and increasing active travel for short journeys that the trip to school has, there is the need for research to provide informed evidence on the key influences on active travel to school, in order to understand the issues with the lack of success of initiatives in increasing the levels of walking and cycling and also to learn about specific interventions that are effective in increasing and maintaining such modes. However, as explained below, the evidence found in this regard is limited (i), there is a lack of focus on factors that would motivate behaviour change in the context of the trip to school (ii) and there is a lack of an inclusive approach on research with children and parents regarding their needs and perspectives about the trip to school (iii).

i. Limited evidence of what are the key influences on active travel to school

Worldwide research, from disciplines such as transport geography, travel behaviour, urban design, health and physical activity, has been conducted on active travel to try to understand the factors that influence the activity itself, both in adults and children in diverse contexts. The answer has been presented in a broad list of factors that may act as both barriers and enablers of two types: physical and perceived. For example, the barriers that public and private sector organizations face in promoting and increasing walking and cycling in Europe (ASTUTE 2008); the effectiveness of population-level interventions intended to promote walking and cycling in the UK (Ogilvie et al., 2004); or the instrumental, social-cultural, affective and symbolic factors that affect the diverse travel modes (Stradling, 2011; Stradling et al., 2005; Gatersleben, 2012; Gatersleben and Uzzell, 2007; Horton, 2007; Steg, 2004; Ellaway et al, 2003; Steg et al., 2001). Focusing on children, extensive academic research conducted specifically on the journey to school in worldwide contexts has gained momentum in the last few years. Such research is centered largely on charting the reasons why there has been a decline in children's physical activity or children's independent travel to school and identifies a vast number of aspects that act as barriers, for example, parent's perceptions of danger in their local environment leads them to impose more restrictions on their children's independent travel for longer than was felt necessary in previous generations (Hillman et al., 1990); the effects of the context where children live in terms of urban form, size, structure, land uses,

distances, residential density and other components of built environment, such as streets and road crossings, appear to exert a small but significant effect on walking to school (O'Brien et al., 2000; Kytta, 1997; McMillan, 2007; Staunton et al, 2003; Rivkin 2006). The change in the pace and complexity of modern life that pushes families to choose cars as the main mode of transport is also considered as a barrier to walking (Macket, 2002). High household incomes, more access to cars (Cahill, 1996; Davison et al., 2003; Kerr et al, 2007) and parental perception that driving children around, and particularly to school, enables them to minimize their perceived risks of traffic accidents, abduction or attacks (Faulkner et al, 2010; Prezza et al., 2005) are also considered as barriers. In addition, other studies have focused on finding the barriers that children face by walking or cycling (Hine, 1996; Jones et al., 2000; McKee, 2004; Gray et al., 1998; Davis, 2001; Macket, 2002; Martin et al., 2004); or in finding views and experiences of children, young people or parents from rural, suburban and urban areas about walking and cycling for transport (Brunton et al., 2006).

Such studies have a wide range of scope, covering different contexts, such as rural, semi-rural, sub-urban or urban locations; or have focused on limited age ranges; or on a narrow range of issues such as journey purpose, time, distance, physical environment factors and type of interventions, whilst neglecting the effects of other ones that have been found, by more recent research, to influence active travel to school; such as household interactions and family commitments, particularly the coordination between parents' work and children's school schedules, which ultimately affect the decisions to walk or cycle to school in urban areas (McDonald 2008, Pooley et al., 2011).

Despite the extensive research on the journey to school, it is not clear what the key influences on active travel to school are, for reasons such as the relatively narrow focus on factors typically studied within a given discipline, and the lack of focus specifically on children's active travel to school (McMillan 2005; Panter et al., 2008). In this respect, Panter et al., (2008) argued that a key reason why current research in children's active travel is limited is the absence of a comprehensive theoretical framework that explains how environmental factors relate to one another to influence active travel behaviour. Therefore, further investigation on the key influences on active travel behaviour in the context to school is needed to guide future research.

ii. Lack of focus on factors that would motivate behaviour change in the context of the trip to school

After many years of nationwide strategies, the change in school travel behaviour has been insignificant, as evidence shows that the shift towards active travel modes has been negligible, and car use has not declined (DfT, 2008). In this context, a review by Ogilvie et al. (2004, 2005) provided a comprehensive summary of the effectiveness of population-level interventions intended to promote walking and cycling for transport. Population-level interventions were defined as "those applied to an identifiable urban population or area, measuring outcomes in a group of people" (Brunton 2006, p.8). The review showed evidence that cycling and walking schemes did not work, and this is likely to be because either inappropriate messages were given or because the intervention did not gather (and thus address) the expressed needs of the target group. Furthermore, Davies et al. (1996) had previously highlighted that the promotion of active travel modes thus far has considered that by simply promoting and advertising the personal and environmental benefits of such modes, people will walk or cycle more, assuming over-simplistically that knowledge affects attitudes and then behaviour. As stated by Davies et al. (1996),

> *"behaviour change is a staged process, and attempting to provoke behaviour change is most effective if based upon an awareness of the profile of existing and potential walkers or cyclists, their need and perceptions and the factors that would motivate behaviour change". (p.109)*

However, the review by Ogilvie et al. (2004, 2005) also found that relatively few interventions rigorously evaluated their impact with children, young people or parents. Brunton's et al. (2006) review complemented the work of Olgivie et al. by providing informed evidence to suggest further strategies and interventions, for example, the creation of tailored marketing messages for 'subsets' of children, young people and parents – specifically geared to appeal to different ages, socio-economic classes, sexes and locations. Furthermore, Brunton et al. (2006) suggests directions about further research that is needed: into the family's influence on walking and cycling, issues of personal safety, convenience and the social value of these means of transport for parents and children. According to Brunton et al. sub-group analysis is essential to capture views and understand people's transport behaviour, e.g., how motivations and attitudes vary across different age groups and genders, locations and socio-economic classes. In this regard, Cavill and Watkings (2007) have highlighted the need for further context-specific qualitative research and investigation into whether perceptions apply to certain settings or locations.

It is considered that understanding groups in local populations would help to develop more effective, targeted and sustainable transport initiatives (Pooley et al., 2011; Thornton et al.,

2011; Stradling and Anable, 2008). In England, car-owner families in urban (21%) and suburban (17%) locations account for 38% of the population and a further 12% of non-car-owner families in urban locations might potentially become car owners in the future. In this regard, the potential of the family in urban and suburban locations as a sub-group for change into active travel modes is high, as it accounts for 50% of the total population in England (Thorton et al., 2011) and therefore, the type of interventions that appeal to their feelings and interests needs to be investigated in order to understand how, why and when they might be willing to alter their travel habits (Oja and Vuori, 2000) as this information has important implications for the development of more effective interventions and promotion of walking and cycling.

iii. Lack of an inclusive approach on research with children and parents regarding their needs and perspectives about the trip to school

McMillan (2005) considers children as a user group poorly served by today's transportation system and also understudied in terms of travel behaviour, despite their travel needs having a direct impact on household travel patterns because similarly to adults, they also need transportation for activities such as education, social events and health care. This view is supported by Davis et al. (1996) who further state that children are major users of their local areas and make journeys nearly every day, but their views have been ignored in discussions about transport, planning and environmental health.

Evidence shows that children's perspectives, defined as the 'ways of regarding situations from their own point of view', are often ignored by researchers as children are perceived to be difficult to reach by the research community and its traditional methods (Christensen and O'Brien, 2003; INVOLVE 2004) due to critical issues including the legal system, power relations, methodology, ethical issues, consent, and the dissemination process (Fraser et al, 2004).

According to the UK legal system, children are one of the groups to be considered 'vulnerable' by The Safeguarding Vulnerable Groups Act 2006, the Protection of Vulnerable Groups (Scotland) Act 2007 and the Safeguarding Vulnerable Groups (Northern Ireland) Order 2007. The Acts define children as being under 18 years and following requirements, people who seek work with children or vulnerable adults are currently vetted through a system that involves employers applying to the Criminal Records Bureau (CRB) for disclosures about new job applicants under arrangements set out in the *Police Act 1997*. CRB disclosures include information from police databases and local police records about the individual's criminal record and may also include other

information held by the police. Children are therefore perceived 'vulnerable' and in need of protection, thus in some cases, dependent, incompetent and unreliable by the legal system (Fraser et al, 2004); as a result, its more often parents which are consulted on their children's behalf, reflecting what has been described by Morrow (2010), as the tendency of adults and researchers of not being respectful of children's views and opinions (Morrow, 2010).

Hence, according to Clifton and Handy (2001), during the last 60 years, the traditional approach in travel behaviour research has been limited to the examination of adult travel behaviour, primarily that which is car dependent; but since walking and cycling happen on a 'smaller and finer-grained scale' of the transportation system, factors that affect the decision to cycle or walk for various purposes (travel or non-travel related) differ greatly from those affecting car trips; therefore, the experiences and needs of a pedestrian, especially a child pedestrian, may also be different from those of an adult automobile driver (McMillan 2005). In this regard, children and young people should be recognized as social actors and should be actively involved for research practice that informs policies (Moore, 1986; Christensen and O'Brien, 2003). Furthermore, the role of parents as important gatekeepers of children's physical activity opportunities makes it important to investigate both child and parental perceptions of the environment in relation to children's participation in walking and cycling; as the perceptions of both groups may be independent or interactive (Brunton et al, 2006; Page et al, 2010).

Past research on travel behaviour has also relied on quantitative approaches that have contributed to the development of sophisticated models to forecast and predict changes in the transportation system but have failed to understand the complexities and constrains of the choices that individuals, families and households make about their daily travel (Clifton and Handy, 2001). According to Stevens (2010, p.4), more recent research,

> *"Seems to largely focus upon quantitative measurement of children's mobility experiences to and from school (Pooley et al, 2005a; McDonald, 2008) and the nationwide strategies aimed at changing people's travel behaviour in a hope to reduce car dependency for the journey to school (DfT, 2008). However, making broad-based assumptions based on statistics and broad patterns of behaviour tends to ignore the rich complexity and diversity in everyday childhood mobility experienced and shared by the children themselves".*

For instance, the need for qualitative approaches to improve the understanding of travel behaviour has been emphasised by Clifton and Handy (2001); whilst the *"need for inclusion of children and young people into meaningful, participatory research on issues that affect them in their everyday lives"* has been highlighted by Stevens (2010 p.6).

Further evidence suggests that researchers perceive children as a homogeneous group (Lewis et al, 2000), although the United Nations (1989) and UK definitions of children (all people up to, and including, 18 year olds), suggest that children are not a homogeneous group, but in fact comprise a wide variety of characteristics and dispositions; experience particular social circumstances; live in different communities; and attend primary and secondary level schools that differ in terms of ethos and facilities (Lewis et al. 2000). Furthermore, according to Frasier et al., (2004) the definition fails to acknowledge the clear differences between an infant and a young person. Nevertheless, researchers have the responsibility to give children and young people an active participatory role in research (Fraser et al, 2004) because since access and diversity are the most important themes in each childhood environment policy, research with children and young people is crucial to advance understanding of how to understand them better, or how to improve their lives (Fraser et al, 2004).

Hart (1997) considers 'participation' as a "dynamic constructive process" and highlights that "there is no universal model on how children should participate in society". In the context of the city, and along the lines of 'participation', Christensen and O'Brien (2003) discuss the issue of extending the principle of 'inclusivity' to children and young people in debates about the environment. The authors argue that a 'city for all' has to include sensitivity to children and young people both as a social group, with all its complexities, and to children and young people as individuals. A key part of this sensitivity involves understanding city life from their perspectives in order to reform the environments within a child-sensitive framework (Christensen and O'Brien, 2003). However, some assumptions need to be overcome first, such as researchers' assumptions that methods used to study adults can be used to study children or that one method adapted to suit children will suit all of them (Lewis et al, 2000). Fraser et al. (2004) on the other hand, recommend that in order to overcome assumptions of children's apparent incompetence, researchers need to be aware not only of children's diversity but of their own responsibility in identifying methodologies which enable children to express their views. Therefore, it is required for researchers to consider multiple research strategies or 'participatory' methods to engage with children (Morrow, 2010) and also to be imaginative and sensitive in the approach to working with children (Christensen and O'Brien, 2003); by adapting and innovating the traditional methods of research used with adults (such as questionnaires, interviews and participant observations); and, also by exploring more creative, interactive, varied and appropriate methods of interpreting findings (Fraser et al, 2004; Hart 1997).

Another critical issue is researchers' concerns about the ethical issues that apply when working with children, and the lack of guidance available about the processes (INVOLVE 2004; Fraser et al, 2004; Morrow, 2010). Ethics in research have been defined as the application of a system of moral principles to prevent harming others, to promote good, to be respectful, and to be fair (Sieber, 1993; Morrow, 2010). Although according to Lewis et al (2000), research with children poses the same ethical questions that apply to other types of research, further considerations need to be taken into account when researching children and young people. For example, Morrow (2010) stipulates that 'practitioners' should be socially and professionally responsible and competent in their interactions, in the set tasks and in the treatment of information required. Thus, further implications to be considered by researchers looking to engage with children and which might make the process more difficult, lengthier and time consuming are: undertaking appropriate training; negotiating access and obtaining consent from gatekeepers (parents, carers, school teachers and head teachers etc) before establishing contact with children; plus further issues surrounding the dissemination process of the research with children (Fraser et al, 2004).

1.5 The research aim and objectives

The aim of this research is to explore children's and parents' perspectives of a supportive environment for active travel to school.

Embedded in this aim, in a more precise way, are the following research objectives:

1 To determine the current knowledge base on factors that affect children's active travel in the school context

2 To appraise the government policies, strategies and schemes in which the journey to school has been framed in the UK

3 To develop a range of interactive methods within the context of active travel to school which can be used to elicit the views of children and parents

4 To analyse both the current barriers and enablers to active travel to school and the proposed suggestions for change, as identified by children and parents

5 To provide a critical synthesis of the requirements of a supportive environment for active travel to school

1.6 Structure of the thesis

According to Davis (2007), although the traditional structure of the thesis (literature review; methodology; research design; findings and conclusions) is constantly being challenged, the final thesis should reflect the research process undertaken. With regards to this research, the thesis is divided into eight chapters that reflect the research process as follows.

CHAPTER 2: Following this introductory chapter, chapter two presents the literature review concerned with examining the key factors that influence the modal choices on the trip to school. According to Burns (1997) and Hart (1998) the literature review has advantages such as identifying gaps in existing research knowledge, identifying neglected issues in previous research and in getting a rich source of primary and secondary evidence to outline. Literature addressing known factors influencing modal choice on children, families or transport to school by diverse disciplines such as planning, transportation, geography and urban design was critically reviewed and a synthesis of frameworks used to guide the methodology of this research was produced and is presented in this chapter as *the synthesis of factors and variables that affect children's active travel to school*.

CHAPTER 3: As policy was identified by the literature review in chapter two as one of the main factors influencing the trip to school, and as this research is concerned with social or physical environment phenomena that can be translated into policy, the third chapter presents the context of policy surrounding the trip to school and further situates it within the political structures of the national policy framework. This chapter highlights policies, strategies and schemes, which over the past decades have focused on transport, urban design, health, education and social justice in order to encourage behaviour change. Through the evaluation of the diverse approaches followed by these policies, the barriers to action are raised, and the gaps between policy and practice are outlined.

CHAPTER 4: This chapter introduces the participative methodological approach that was central to this research. At this point in the research journey, having gained an understanding of theoretical contextual framework that underpins the research; a deeper understanding of the research philosophy, methodology, strategy and methods was required. Hence, a further literature review was undertaken in these respective areas in order to match them to the research question that was posed. The social constructivist philosophy and the choice of a qualitative survey methodology in order to engage with a

population of children and parents used in this study are discussed in this chapter. The ethical considerations pertaining to this research are also addressed. In addition, this chapter illustrates the methods used for data collection, which are participatory in nature and are based on focus groups, activity groups and semi-structured interviews. A detailed range of methods is described in detail. Finally, the approach to sampling and analysis that was followed in this research is presented.

CHAPTER 5: This is the first of three empirical chapters and corresponds to one of the objectives of this research, which is to investigate the key influences on active travel to school on children and parents from families in urban areas. Focusing on children and parents' views, the chapter presents the results as the barriers to active travel to school by thematically analysing the data and findings. A graphic synthesis of barriers to children and parents' active travel to school is provided in this chapter.

CHAPTER 6: This is the second empirical chapter and also corresponds to the same objective to investigate the key influences on active travel to school on children and parents from families in urban areas; however it presents the results as the enablers to active travel to school by thematically analysing the data and findings. A graphic synthesis of enablers to children and parents' active travel to school is provided in this chapter.

CHAPTER 7: This is the third empirical chapter and corresponds to other objective of this research, which is to investigate the factors that would motivate behaviour change on children and parents in the context of the trip to school. This chapter presents the results as emergent themes of what would encourage children and parents' active travel to school thematically analysing the data and findings. A graphic synthesis of what would encourage children and parents' active travel to school is provided in this chapter.

CHAPTER 8: This chapter presents the discussion based on the results presented in the empirical chapters 5, 6 and 7 and structured around the *synthesis of factors and variables that affect children's active travel to school*, which was produced in chapter 2 of this thesis. This chapter also discusses how the results fit into the existing body of knowledge and current theories.

CHAPTER 9: This is the final chapter of the thesis and provides the main conclusions set against the key research questions, aim and objectives, the challenges and limitations of this research and the opportunities for future work. In addition, the contribution to knowledge, theory, methodology and practice of this PhD research are discussed in this chapter.

Finally, it is important to define at the outset certain terms that are used in this thesis. Firstly, the term *'travel to school'*, for ease of reading includes the trip *'to'* and *'from'* school; although this research recognises that in some cases the two may be different. Secondly, although the definition of children used in this research includes 0 to 18 year olds, the choice to use the term 'children' in this thesis is purely for simplification purposes. Furthermore, the terms 'children' and 'young people' are synonymous and are used interchangeably in this thesis, despite this, the research recognises that there are differences between, as well as within both groups. Similarly, the term 'parents' also includes 'carers' and these are used interchangeably in this thesis for the purposes of simplification. Thirdly, it is worth noting that the views of parents and children have been represented as directly as possible through the use of their own language, spelling, grammar and through the use of photography and other graphic material derived from the focus groups and activity sessions in the empirical chapters (five, six and seven) of this thesis.

CHAPTER 2: FACTORS AND VARIABLES THAT INFLUENCE ACTIVE TRAVEL TO SCHOOL

2.1 Introduction

This chapter is the first of two that address the literature review pertaining to this research. In this chapter, known factors influencing modal choices on the trip to school, children, parents or families are reviewed. The conclusion to this chapter allows the author to gain understanding of complex environmental factors and variables that affect the school travel choice such as: a) the broader political, social, and physical factors; b) the neighbourhood contexts in which schools are located; c) the household and family dynamics and decision making process in which children and parents get involved and d) the personal characteristics of children and parents. Furthermore, a synthesis of the factors and variables known to influence active travel choice and behaviour in the school context is produced at the end of this chapter. This synthesis is used as a theoretical framework from which to examine the research problem and the research questions both conceptually and via empirical analysis in the further chapters of this thesis.

2.2 Affect of Travel Mode

According to Stradling et al. (2000, 2003), there are a number of factors that determine why people travel the way they do and use the travel modes they do. Such factors are their perceived obligations (e.g. going to work, school or shopping); the existent travel opportunities (how they get there and how long it would take); and their inclinations to travel by different modes (by car or public transport, walking, or cycling). In this particular respect, the inclination for one or other type of transport therefore, not only varies depending on the characteristics of the person (such as age, gender, income, or health), or the spatial organization of the environment and the characteristics of the transport system but also on their values, motivations, past experiences and perceptions of the diverse transport modes (Stradling, 2011).

For example, previous studies examined the various motives for car use and found that car use not only fulfills *instrumental* functions (speed, flexibility, cost and convenience), but also important *symbolic and affective* functions (feelings of protection, autonomy, power, superiority, prestige and arousal) whereas this is not the case for public transport. (Gatersleben and Uzzell, 2007; Steg, 2004; Ellaway et al, 2003; Steg et al., 2001). This, according to Gatersleben (2012) is because cars allow people not only to go ‘from A to B quicker than public transport but cars also allows people to express to others who they are

or how they would like to be seen" (p.678) and, according to Steg (2004), frequent drivers, drivers with positive car attitude, male and young people value more the symbolic and affective motives. Hence, according to Stradling (2011) in the United Kingdom, the future travel behaviour intentions of young people between the ages of 11 and 18 years are dominated by the desire to drive and/or own a car, with predrivers aspiring to the perceived benefits of car driving. On the other hand, although driving is a rule-governed, demanding and skill based task that requires total focus and concentration from the driver on a car journey, it also provides a high psychological satisfaction such as mastery and self-steem (Ellaway et al, 2003) and brings numerous benefits, e.g., households with access to a car enjoy frequent social interactions with their support network of relatives and friends and are thus less likely to suffer social isolation; more visit sports and cultural facilities; they report better health status, and fewer of them have disabilities causing difficulties with traveling; they rate themselves higher on indices of civic participation; and more of them live in nicer neighbourhoods (Stradling, 2011; Stradling et al., 2005). Many previous studies on travel mode choice also suggest that people tend to prefer a car to other forms of transport for reasons such as flexibility and control (Stradling, Meadows, and Beatty, 1999), however, Gatersleben and Uzzell (2007) found that a *lack of control* (e.g., in terms of getting stuck in traffic jams) was an important source of stress and unpleasant experience for drivers, and as the number of cars on the roads increases, it can be expected that both actual and perceived control is likely to decrease.

With regards to public transport, Stradling (2011) argues that there are *social and affective* factors that discourage bus use, such as feeling unsafe; preference for walking or cycling; problems with service provision; intrusive arousal; cost; preference for car use; disability and discomfort; and self-image. Regarding this last aspect, according to Stradling, one barrier to increased bus patronage has been held to be the *image* of bus service as "a transport mode that has become associated with young people…elderly people…and people on low incomes...i.e., a mode of last resort" (Bus Partnership Forum, 2003, p.9 as cited by Stradling, 2011). Although public transport users perceive that their journeys take more time than by car, the most problematic experiences seem mainly related to the poor infrastructure provisions (Gatersleben and Uzzell, 2007). In addition, many users of public transport lament the lack of autonomy in using the system as passengers and often complain about delays and waiting times that cause them stress as well as boredom (Gatersleben and Uzzell, 2007). However, the main sources of pleasure for public transport users appear to be passive activities resulted from being a passenger, such as reading, listening to music, interacting with other people, or looking at the passing scenery (Stradling 2011). Nevertheless, Wardman, Hine, and Stradling (2001) argue that bus travel is perceived to be more emotionally strenuous than car use, largely because of the

cognitive effort necessary for interchanges, which appears to be highest for journeys by public transport.

As for walking and cycling, although involve significantly more physical effort than driving or using public transport, these are perceived to be relaxing and intrinsically motivating activities in their own right (Gatersleben 2012; Gatersleben and Uzzell, 2007). Despite some environmental sources of displeasure in terms of provision (overgrown unlit paths and lack of safe crossings) and the sheer volume of traffic causing noise, pollution, and danger, journeys on foot, particularly, are perceived to be the most relaxing journeys, as walkers travel the shortest distance and seem to enjoy the activity itself (Gatersleben and Uzzell, 2007). On the other hand, despite that for cyclists, unpleasant experiences were mainly caused by other road users, cycling is considered a more exciting activity and also seem the most optimum form of travel from an effective perspective (Gatersleben and Uzzell, 2007). However, according to Horton (2007) in terms of transport, there are social constructions about cycling as a 'toy' and not a 'tool'; a 'risky behaviour' and about people that cycles as 'strange' that encourage car-dependent practices as demonstrations of care and safety. In this regard, Horton argues that one of the aspects that affect the choice of cycling as a transport mode is the type of interventions that aim at increasing cycling's safety, because strategies such as road safety education, helmet promotion campaigns and the increasing separation of cycling from motorised traffic are based on an unequally distributed road safety that redistribute the danger from car occupants to pedestrians and cyclists and helps to build a 'culture of fear' of cycling.

2.3 Barriers to Active Travel

Worldwide research, from disciplines such as transport geography, travel behaviour, urban design, health and physical activity, has been conducted on active travel to try to understand the factors that influence the activity itself, both in adults and children in diverse contexts. The answer has been presented in a broad list of factors that may act as both barriers and enablers of two types: physical and perceived. For example,

research carried out by the Advancing Sustainable Transport in Urban Areas to Promote Energy Efficiency (ASTUTE 2008) in six cities across Europe (Budapest, Dublin, Granada, Graz, London and Siracusa) identified the principal barriers, which impede progress in increasing walking and cycling throughout Europe. The barriers included *perceived or real safety and security danger* encountered whilst cycling or walking and relating to storage of associated equipment; *lack or inadequate information* and communication regarding walking and cycling routes, the location of facilities and the ineffectiveness of promotional

campaigns; *inadequate urban environment* that includes a challenging topography and climate and issues with the appearance of the urban area; *issues with the infrastructure* such as the insufficient provision and maintenance of cycle lanes, walking paths, cycle parking and inter-changes with other transport modes; *poor public perception about w*alking and cycling as transport mode or the habits, lack of public interest and cultural barriers not being successfully challenged; *accessibility and health issues:* walking and cycling not being accessible modes due to lack of facilities or people's insufficient fitness or mobility; *lack of public and private sector support* that gives a low priority to cycling and walking initiatives and lacks awareness about current schemes respectively; *congestion and air pollution* that makes journeys uncomfortable and unhealthy for pedestrians and cyclists; and, *lack of education and training* reflected in the low level of cycling proficiency, road safety skills or knowledge on cycle maintenance.

More specifically at the UK context, barriers of two kinds: physical and perceived, that seems to affect cycling levels equally, have been identified. To the first group, as *physical barriers* to cycling, the lack of good cycling infrastructure (which includes cycle routes cycle parking and facilities at destinations); a hilly topography; high levels of rainfall and cold winters; long riding distances and travel time; the presence of heavy motor traffic; big and fast urban roads; busy junctions; pollution; (Greig 2012; Horton and Parkin, 2012; Gatersleben and Haddad 2010; Parkin et al., 2007). In addition, the *effort* that cycling takes has been found to be a barrier equally important. For example, Parkin et al. (2007), found both: the *effort* of cycling and the *environment* through which the cyclist travels, as important as more traditional concerns with time and distance; therefore, the nature of the cycle vehicle: comfort, aesthetics, luggage handling and gearing, are as important as the physical environmental aspects: the surface condition, the general attractiveness of the route and the relative presence of motor traffic.

The second group, *perceived barriers* include individual emotional-psychological and social-cultural barriers. For example, Horton (2007) argues that *fear* is an important emotional barrier to cycling, as it is possible to fear cycling for many reasons beyond the fear of having an accident. Horton (2007) suggests the existence of two main fears: 'of cycling as a 'practice' to be feared, as puts people outside 'on view' and 'vulnerable' to harassment and violence from strangers; and fear of the cyclist as a 'figure' to be feared, which is connected to *issues of identity* and include the fear of ridicule, of losing status, of riding a 'gendered, classed, raced and stigmatized' vehicle, of undermining their current sense of identity and becoming 'strange' (p.134). These psychological barriers, according to Horton et al. (2012), affect especially to novice and returning cyclists because they are the people more afraid of appearing inept, embarrassed and humiliated in public.

Furthermore, Horton et al. (2012), argue that as cycling becomes 'less normal' and more difficult to do, its practice tends to produce stronger identities and cycling has become a 'deviant', 'abnormal' activity associated mainly to men, and the cyclist has become a rider that needs to be agile, fit, fast, with a particular way to dress (in lycra). Associated aspects such as arriving at destinations 'sweaty' or with 'helmet hair' are also perceived barriers that inhibit people from cycling (Greig, 2012).

On the other hand, and focusing specifically on children, a vast number of aspects that act as barriers to walking and cycling have been identified. For example, *parent's perceptions* of danger in their local environment leads them to impose more restrictions on their children's independent travel for longer than was felt necessary in previous generations (Hillman et al., 1990) due to concerns about children's lack of pedestrian skills (Salmon et al., 2007) in relation to high speed, heavy traffic and busy crossings on the routes to school (Mackie 2009) and to perceived *social* barriers, for example, gangs, intimidation, presence of dogs and concerns about being assaulted or molested on the way to school (Benson & Scriven, 2012; Salmon et al., 2007). With regards to cycling, such perceptions include fear about road accident: injury, cars exceeding speeds limits and car parking around school and also to lack of cycling provision and inadequate storage facilities (Mackie 2009; Salmon et al., 2007).

The effects of the context where children live in terms of urban form, size, structure, land uses, distances, residential density and other components of built environment, such as streets and road crossings, appear to have a effect on walking to school (O'Brien et al., 2000; Kytta, 1997; McMillan, 2007; Staunton et al, 2003; Rivkin 2006). For example, distance to school being too great for a child to walk or cycle (longer than 15 minutes in the case of walking), difficult terrain and lack of directness (Salmon et al., 2006). However, there are some discrepancies regarding bad weather and lack of light as being definite influential barriers to children's cycling to school (Benson & Scriven, 2012).

The change in the pace and complexity of modern life that pushes families to choose cars as the main mode of transport (Macket, 2002); plus lack of time in the mornings; the weight of school bags; walking or cycling seen as 'unfashionable' and children's preference for being driven to school (Salmon et al., 2006) are all considered barriers. Also, the desire to cycle to school declined in adolescents between 12-15 and the probability of a child cycling to school decreased when they did not have a friend who cycled to school (Benson & Scriven, 2012). On the other hand, high household incomes are related to more access to cars (Cahill, 1996; Davison et al., 2003; Kerr et al, 2007) and also to parental perception that driving children around, and particularly to school, enables

them to minimize their perceived risks of traffic accidents, abduction or attacks (Faulkner et al, 2010; Prezza et al., 2005).

2.4 Research addressing factors and variables affecting active travel to school

As discussed through the conceptual framework presented in the introductory chapter of this thesis, several disciplines such as transport geography, travel behaviour, urban design, health and physical activity have conducted research on active travel to try to understand the factors that influence the activity itself, both in adults and children in worldwide contexts (ASTUTE 2008; Ogilvie et al., 2004). The answer to this question has been presented in the shapes of factors that act as barriers and/or enablers of two types: physical and perceived. Yet such extensive research has provided limited evidence on the complexity of the relationship between those factors because of 1) the relatively narrow focus on variables typically studied within a given discipline; 2) the absence of a framework that suggested how factors relate to one another to affect active travel behaviour (McMillan 2005), and 3) a lack of focus on children's active travel to school. Therefore, according to McMillan (2005) and Panter et al., (2008) a framework was needed that a) addresses the question of children's active travel behaviour directly rather than encompassing it in adult and auto travel behaviour and b) explicitly addresses the complex structure and direction of the relationships that exist in the decision making about a child's trip to school. To this effect, six recent papers that proposed frameworks which transcended the boundaries of their geographical areas and disciplines and/or that address factors of influence in relation to the journey to school, to active travel modes, or to children or families with children were identified: McMillan (2005); Brunton et al. (2006); Panter et al. (2008); Sirard and Slater (2008); Faulkner et al, (2010) and Pooley et al., (2011).

2.4.1 The influence of urban form as a possible change agent

Urban form has been defined by Handy (1996) as a composite of characteristics related to land use patterns, transportation systems and urban design. McMillan (2005) developed the first conceptual framework that discussed the issue with using urban form as a possible change agent to affect children's travel behaviour to school. The framework assumed an elementary-aged school population (children aged 6 to 12) because the geographic scale that elementary schools serve (neighbourhood based) may support walking and cycling for a greater number of the school population and because higher numbers of injuries and physical inactivity/obesity statistics for this group indicated a need for understanding their behaviours in order to inform interventions.

McMillan (2005) considered that some elements of urban form may influence the psychosocial factors (perceptions of safety and /or traffic) and/or the socioeconomic factors (household transportation options), which may in turn influence parental decision making about how a child travels to school. McMillan identified the key decision maker as the parent, assuming that up to a certain age, the final decision about the trip to school is most often made by the parents in the household, not the child. Therefore, that decision is not limited to the schedule, constraints or thoughts of the child but is influenced in large measure by those of the parents. In this sense, parental decision-making can be seen as an intervening causal 'variable or mediator' of a child's travel behaviour. Parental decision-making itself may be a consequence of other intervening variables, however. McMillan considered the influence of perceived and actual traffic safety, which also has mixed effects on parent's decision-making, as it may vary depending on the perception of control that parents feel they have over the child's behaviour e.g., through the presence of other individuals walking to school with the child or education on walking safety (McMillan, 2005).

McMillan acknowledged the existence of factors that may not have apparent relationship to urban form and are not seen as intervening causal variables, yet affect parental decision-making about the trip to school (e.g., household income, number and age of children in family, cultural norms). Such variables may be the moderators, meaning that the strength of the relationship between an intermediate variable and parental decision-making may vary for different levels of a variable. For example, a family with only 1 child may have the time and resources to make active commuting to school a reality; in contrast, a family with 4 children may be more limited in time and other resources to support active travel to school. McMillan's (2005) graphic framework can be seen Figure 2.1.

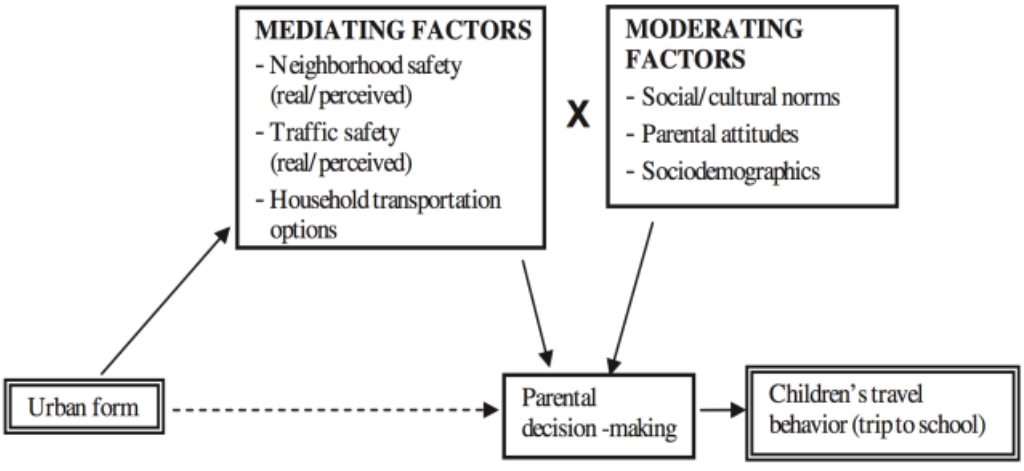


Figure 2.1: The influence of Urban Form Framework (Source: McMillan, 2005 p.449)

McMillan (2005) concluded that it is not clear how urban form actually relates to travel behaviour and questioned the relative importance of urban form compared to other factors of influence, such as the travel behaviour decision-making process. In order to identify how urban form fits into the complex structure, McMillan's work suggested dissecting the travel behaviour decision-making process in order to identify how urban form fits into the complex structure.

2.4.2 Four levels of car influence on walking and cycling for transport

Brunton et al. (2006) conducted an in-depth systematic review of studies from the planning, transportation, urban design, public health and physical activity disciplines that addressed the views and experiences of children aged 4 to 18 and parents from rural, suburban and urban areas about walking and cycling for transport. This review found that car use was an influential factor at individual, family, wider societal and community levels. For example,

At individual level, a child's clear and definite views often diverge from the views of their parents in relation to their transport preferences and the environmental impact of different transport modes, and this shows them as 'responsible transport users'. However, their *preference* for cars is apparent, particularly in the case of young children and girls, that prefer being driven to walking or cycling.

At family level, parent's *perceptions of responsibility* makes them drive children to school under the pressure of being considered 'bad parents' if they did not. Furthermore, they use the car not only for transport but also for protection, in terms of safety particularly in the case of girls.

At community level, the fear and dislike of the local environment is the main factor that makes a car the most popular choice to transport children. This includes the *fears of safety* in terms of traffic or stranger danger, negative features of the natural environment and practical worries about the lack of facilities for walking or cycling.

At wider society level, cultural factors result in stereotypes that put 'driving' in a better position than walking or cycling. This is reflected by the perception of cars as a 'cool' mode, more convenient that walking and cycling. Furthermore, car ownership and use is viewed as an integral part of a normal adult lifestyle, which fights against the use of active transport and whilst the impact of this 'car culture' is stronger on parents and older people,

it already manifests itself in young children. In addition, *weather* was another aspect that influences their decision about car use. An adapted graphic synthesis in Figure 2.2, by Brunton et al., (2006) shows four levels of car influence on walking and cycling for transport.

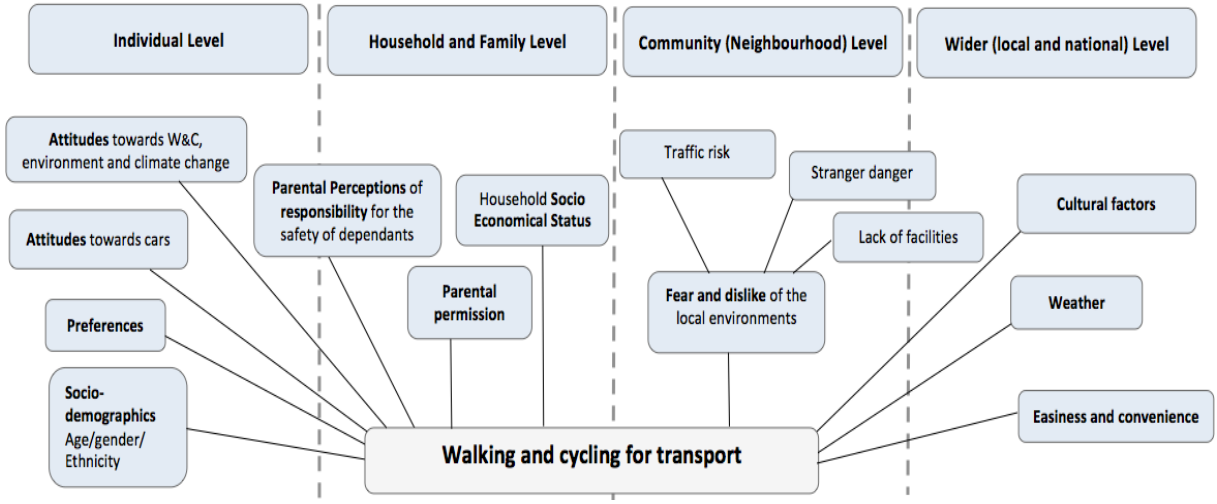


Figure 2.2: Four levels of car influence on walking and cycling for transport (Source: material derived from Brunton et al., 2006)

The findings of the Brunton et al. (2006) review, suggest that there are clear and complex factors that influence each other and operate at the level of the individual, family, community and wider society, and that these differed across studies depending on a child's age, sex and location (urban, suburban or rural). According to Brunton et al., (2006) this information is relevant to many policy-makers, practitioners and researchers who are interested in wider social policies relating to the environment, health and equalities. However, although the review tackled the views and experiences of children, young people or parents from rural, suburban and urban areas about car use, and walking and cycling for transport, it did not focus explicitly on the journey to school, and that is the focus of this PhD research.

2.4.3 Diverse domains of influence on children's active travel behaviour

Panter et al. (2008), presented a novel theoretical framework that integrates the environment into the wider decision making process around travel choices for children and adolescents (Aged 5-18). This framework is not only applicable in active travel to school but to other types of travel behaviours in which children and adolescents may engage, such as travel to a friend's house, parks or local destinations.

The framework contains diverse domains of influence on active travel behaviour: *individual factors*, *physical environmental, external factors* (outside the most proximal domains of influence), and *main moderators*. The *individual factors* are comprised of the characteristics, attitudes and perceptions of children and parents about active transport and the environment. Within the *physical environmental* factors are included the characteristics of the neighbourhood, destination and the route between home and destination. The *moderating factors* include age, gender and distance. Panter et al. (2008) suggested that the individual, physical environmental and external domains are most likely to influence decision-making regarding mode of travel, while the main moderating factors will alter the strength and form of the association between those factors and the decision made. Unlike McMillan, who suggested that in children up to a certain age, parents are the main decision makers about mode of travel, the Panter et al. framework recognises that either parents or youths may decide how to travel, with the main outcome being the level of transport related activity. This framework allows for the fact that the actual decision on travel mode is likely to be a result of both parental and child perceptions and that most children and their parents will enter into a dialogue during the decision making process. The graphic framework by Panter et al. (2008) is shown in Figure 2.3.

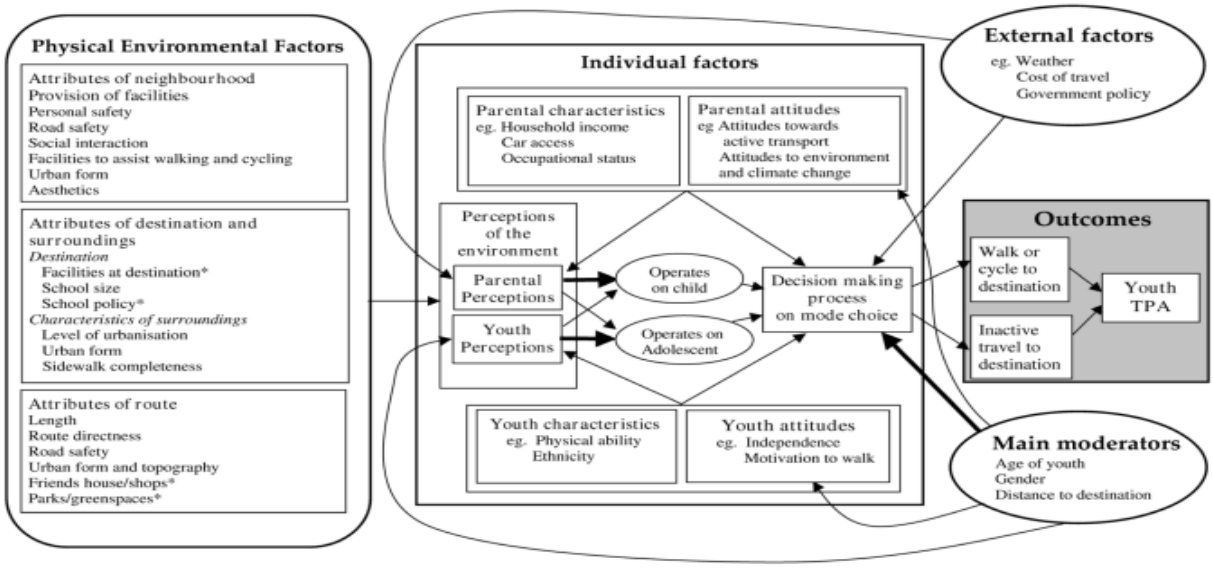


Figure 2.3: The Domains of Influence on Active Travel Behaviour (Source: Panter et al., 2008 p.10)

According to Panter et al. (2008) “understanding the characteristics of children who walk or cycle, and the reasons for choosing these travel level modes, are important first steps in developing effective interventions to increase the number of children engaging in active travel”.

2.4.4 Policy as a factor on active travel to school

Sirard & Slater (2008) reviewed the factors associated (correlates) with active commuting to school within the context of a proposed framework for understanding active commuting behaviour and proposed the Ecological and Cognitive Active Commuting (ECAC) framework. The ECAC framework incorporated elements of the social-ecological model, the McMillan's framework and the social cognitive theory. This framework identified different levels of influence at policy, neighbourhood and parent/family levels.

According to Sirard & Slater (2008), *Policy* decisions at the school, local, or national level have an indirect effect on active commuting by funding of infrastructure projects to support increased pedestrian use (physical environment), additional funding for increased crime prevention measures (social context), or national funds to support local school initiatives to promote active travel to school (physical and /or social environment).

The socio-demographic factors (e.g., age, gender, and race/ethnicity) are presented along the bottom to indicate that these factors could modify the parent's decision about allowing active commuting to school, because as with McMillan's (2005) framework, parents are assumed to make the ultimate decision about whether their child can walk to school or not.

Psychosocial Mediators are conformed by a number of factors that influence parents and children's decisions to opt for active travel to school. A parent's decision in whether to allow their children to walk to [and back from] school is influenced by their perception of the physical and social environment, an evaluation of their child's personal ability to manage the trip to school safely and the resources available to the family during the school mornings [and afternoons] such as number of vehicles, work schedules, time available, etc. Parents also combine those perceptions with attitudes, beliefs and perceptions of social norms. Additional input is received from the child (whether he or she likes walking to school, the child's perceptions of the physical environment and social context). However, the availability of resources may act directly on the active travel behaviour because of a parent's negative perceptions of the social context, or the physical environment, or due to time constraints, or conflicts in parent work schedules and lack of transportation options, the child may still need to opt for active travel to school.

The outcome, *Frequency of Active Commuting* reflects whether or not the child ever walks to school or the actual frequency of trips (per week, per month). However, Sirard and Slater (2008) affirm that the actual "behaviour" of [*Frequency] Active Commuting* to school may, in turn, change the child's influence (child's attitudes, perceptions) or the parents'

perceptions of their social and physical environments. Sirard and Slater's (2008) graphic framework can be seen in Figure 2.4.

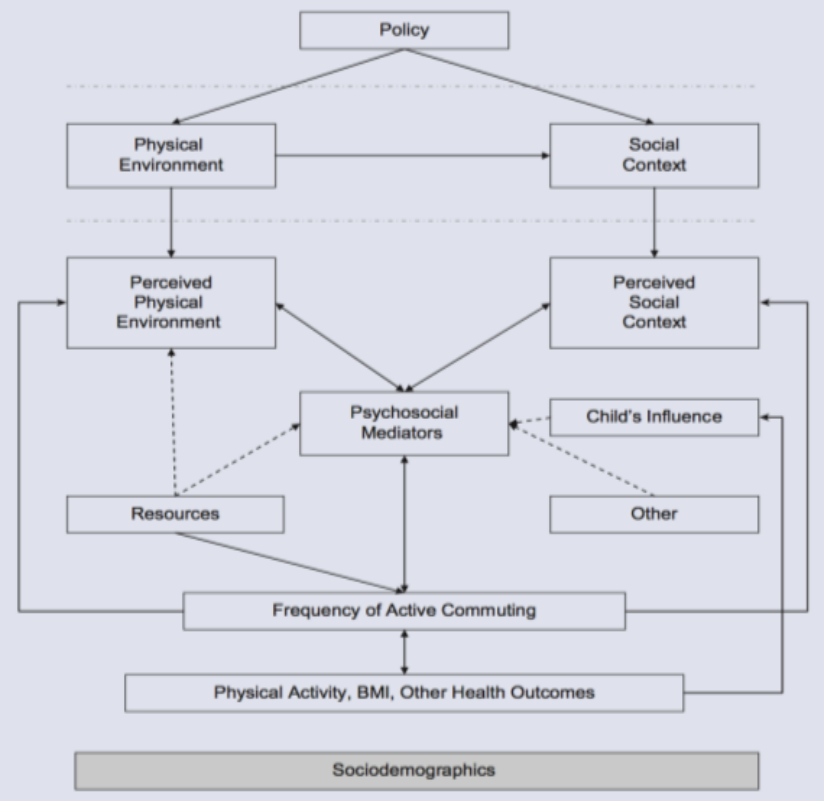


Figure 2.4: The Ecological and Cognitive Active Commuting ECAC Framework (Source: Sirard & Slater 2008, p.379)

2.4.5 The decision-making process about children's transport mode to school

Faulkner et al. (2010) addressed the importance of urban form and socio-demographics in the travel mode to school. This was undertaken through a qualitative investigation of the parental decision-making process that causes a child's use (autonomously or otherwise) of a particular transport mode for journeys to and from school. This decision-making process was explored among parents, whose children went to schools differing with respect to neighbourhood socioeconomic status (low versus high) and built environment (i.e., period of development and street layout) across the Greater Toronto Area (GTA), Canada's largest and most culturally diverse metropolitan region. Faulkner et al (2010) identified a two stage decision-making process, (Fig 2.5). *Decision-making* can be regarded as the mental processes (cognitive process) resulting in the selection of a course of action among several alternative scenarios. Every decision-making process produces a final choice.

The output can be an action or an opinion of choice (Reason, 1990). An initial decision concerned the issue of escorting or chauffeuring a child to/from school. This decision appeared to be primarily influenced by concerns about traffic, the child's personal safety, and the child's maturity and cognitive ability regarding navigating his/her way to and from school safely. Following the escort decision, parents considered mode choice, typically selecting what they perceived to be the easiest and most convenient way to travel. The ascription of convenience to the various modes of transportation was influenced by perceptions of travel time and/or distance to and from school. Convenience became a particularly salient theme for parents who found it necessary to complete multi-activity trip chains. An adapted graphic synthesis of the work of Faulkner et al (2010) that illustrates the two stage decision-making process is presented in Fig 2.5.

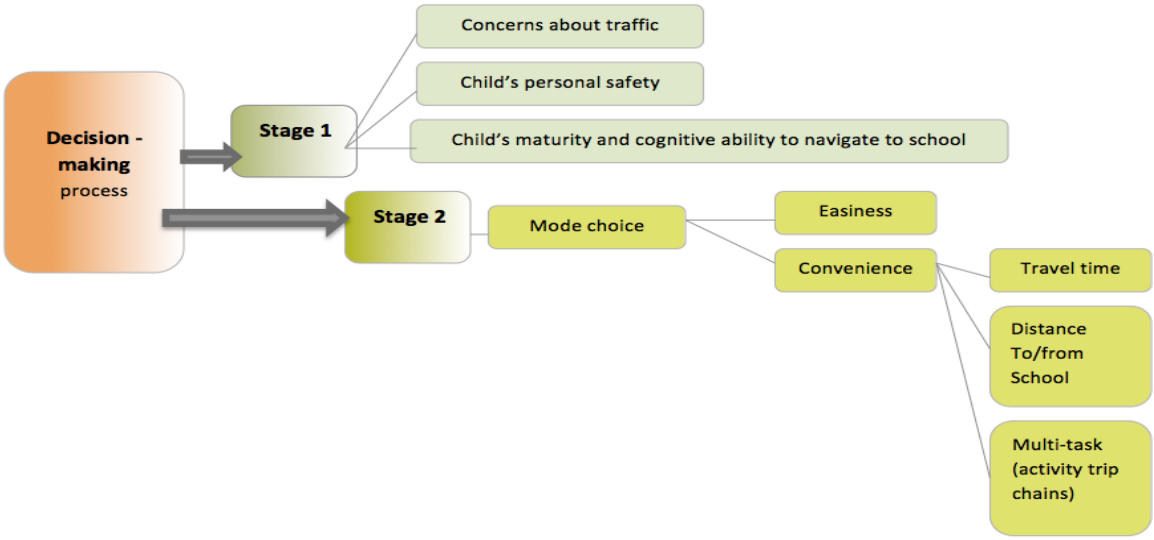


Figure 2.5: The Decision-Making Process (Source: Material derived from Faulkner, 2010)

2.4.6 Household and family factors influencing active travel in short trips

Although not focused on active travel to school, Pooley et al. (2011) conducted research based on a multi-method approach that comprised questionnaire surveys, interviews and ethnographies to families in four urban areas of the UK, and found that despite attitudes towards walking and cycling being mostly positive, or neutral, the three most common factors that act as obstacles to walking and cycling over a short journey were the concerns over safety; the difficulty of fitting walking and cycling into complex household routines especially with young children; and a perception that walking and cycling are "abnormal" things to do.

Pooley et al. (2011) investigated the association between street connectivity and availability and mix of activities in proximity to the home with frequency of walking and cycling using GIS. All the reasonably well used cycle and walking routes deduced from map and field evidence within a street network buffer of 800m for walking and 2400m for cycling (corresponding to a 10 minute journey time) of home respondents, were included on a questionnaire survey. The findings suggested that the connectivity of the street network and the availability of everyday activities within walking and cycling distance of the home are insufficient on their own to encourage walking and particularly cycling. However, perceptions of risk were found to be a major factor influencing everyday travel decisions by this research. For example, it is clear that traffic is a major deterrent for all but the most committed cyclists. Potential cyclists, recreational (off-road) cyclists and occasional cyclists are discouraged from using their bicycles for everyday urban journeys because of their fear of cars and heavy goods vehicles. For pedestrians, the major factor was concern about threats from other people in a poorly supervised urban environment. Empty streets are perceived to be more dangerous and, again, although committed walkers are not deterred, many potential or recreational walkers restrict their journeys on foot because of their perception of risk.

But most relevant evidence informing the author's research resulted from the work of Pooley et al. (2011) whose investigation showed that a number of household and family commitments (Figure 2.8), are significant factors that influence the levels of short walking and cycling trips in urban areas and 'unless such factors are explicitly recognised and tackled, strategies to increase levels of walking and cycling for everyday trips are likely to have limited success'. This evidence was important because as Pooley et al., recognises, most research on walking and cycling focused on a narrow range of issues such as journey purpose, time, distance and physical environment factors whilst neglecting the effects of personal and household situational variables or reducing them to a series of summary characteristic variables relating to age, gender and household size. As stated by the authors,

> *The 'complexities and constraints of everyday life, constructed around household, family and work commitments, are major factors which influence the ability of some people who may have an inclination or intention to walk or cycle for short trips, but fail to actually use this method of transport on a daily basis (Pooley et al., 2011, pp11).*

This, according to Pooley et al. (2011), is a response to the changing dynamics that household structures have had during the last fifty years in Britain, due to the 'increased

pressures of work and time' in 'dual-career and lone parent households' as a result of a 'greater incidence of divorce or separation'.

Some key factors are the presence of children or someone else to care for, which to some extent restrict travel or make it more complicated. The presence of numerous children or small children can take a considerable amount of organisation and negotiation, and for some parents, putting children in the car for even very short journeys becomes an easier option.

The authors suggest that the complexity of multipurpose journeys; time pressures, busy schedules and other commitments, become significant factors in influencing the mode of transport chosen for a trip, so it is often much more convenient to opt for the car if there is one available. In addition, Pooley's (et al., 2011) research mentions that travelling by car requires the minimum of equipment and outdoor clothes if compared with walking and cycling, that require a range of kit and outdoor clothes that need to be available, so often people perceive walking and cycling to be more difficult. His research suggests that adequate storage spaces for cycles and outdoor clothes should be available in all homes. In addition, the authors mention parental concerns about safety related not only to the nature of the physical environment but also to the perceptions of responsibility for the safety of dependents and perceptions of risk, that also interact with family and household factors and may be perceived to affect family members differently. An adapted graphic synthesis of Pooley's (et al., 2011) research on the Household and Family Factors is presented in Figure 2.6.

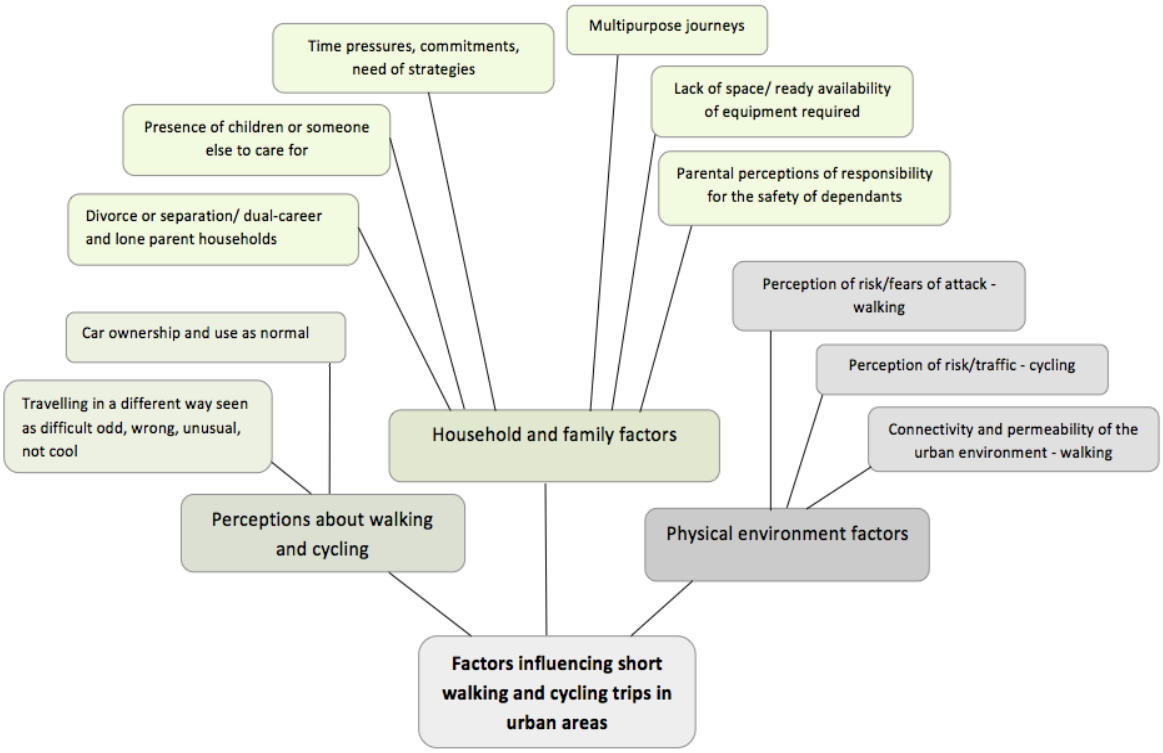


Figure 2.6: Household and Family factors (Source: Material derived from Pooley et al., 2011)

2.5 Synthesis of Factors and Variables that affect Children's Active Travel to School

As discussed above, literature suggests the existence of a complex array of factors that affect children's and parents' mobility and choice of transport at many levels. Urban form, policy, family and individual factors and variables have been discussed, and the relevance of them, as the determinant factors to affect active travel to school have been questioned by several authors (McMillan, 2005; Brunton et al., 2006; Panter et al. 2008; Sirard and Slater, 2008; Faulkner et al, 2010; and Pooley et al., 2011) whose individual frameworks have proposed the existence of other factors that may not have apparent relationships to urban form but that affect the decision-making process about the trip to school.

For the purpose of this PhD, a synthesis of the frameworks (Figure 2.7) has been produced as a way to better understand the effects of the diverse factors on active travel to school behaviour (its choice, frequency and quality) at the following levels: individual; household and family; community (neighbourhood); and at a wider (local and national) level.

- **Individual, household and family level factors**

According to the synthesis, at the individual, family and household level, the psychosocial variables that affect parents' and children's decision-making process about active travel to school that can be influenced by the parent or by the child are:

  - Characteristics of parents and children, such as the socio-demographics (age/gender/ethnicity) and the physical and cognitive ability; preferences; attitudes towards active travel, public transport, car use, the environment and climate change; and; culture/beliefs.

  - Family status: Marital status (divorce or separation, dual-career and lone parent households) and number of children or someone else to care for; household income; occupational status; parental perceptions of responsibility for the safety of dependents; parental permission; perceptions of easiness and convenience: travel time, time pressures, commitments, schedules, time available during school routines, strategies in place; activity trip chains or multipurpose journeys; resources: household transport options; availability of space and equipment required; related costs; and perceptions of weather.

  - Perceptions of safety: refers to perceptions of personal safety (risk and fears of attacks); and to traffic safety (risk and fears of traffic) on the route to school (in the case of children) and further destinations (in the case of parents).

- **Community (neighbourhood) level factors**

At this level the variables are of two types: social and physical environmental:

  - Socio Economic Status (SES) and characteristics of the neighbourhood; accessibility, high density, mixed land use availability of everyday facilities and convenience, street patterns: connectivity of the street network, permeability, distance, topography and aesthetics of the urban environment.

- **Wider (local and national) level factors**

At a wider national and local level the determinant is *Policy*, by funding social campaigns for crime prevention and also by funding physical infrastructure supporting active travel at community (neighbourhood and school) levels.

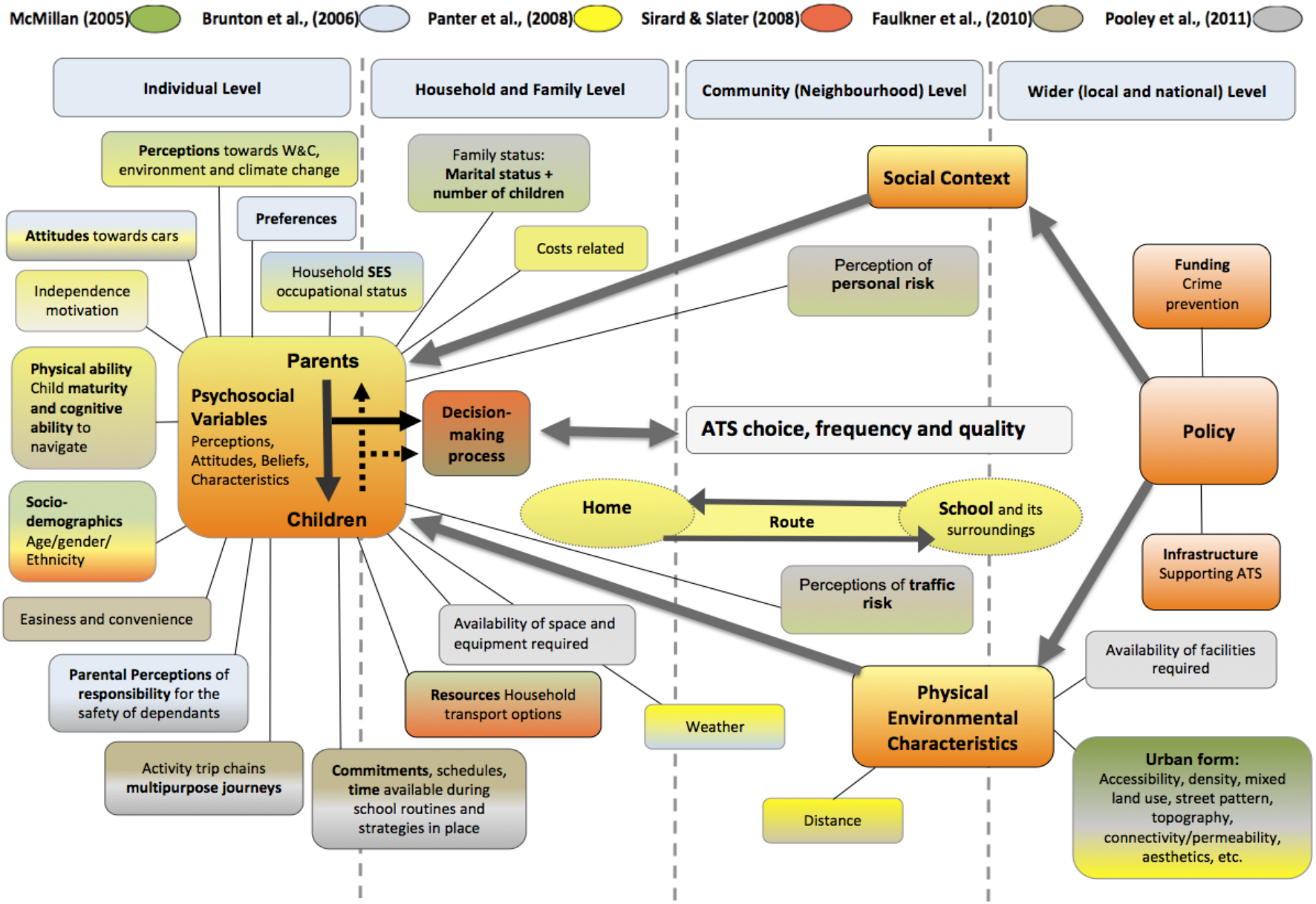


Fig. 2.7 Synthesis of Factors and Variables that affect Children's Active Travel to School

2.6 Summary

This chapter presented the review of the literature examining the key factors and variables that influence the modal choices on the trip to school. Extensive research from authors in diverse disciplines has tried to understand the factors that influence active travel in worldwide contexts. A range of instrumental, symbolic and affective functions, and a broad list of factors acting as physical or perceived barriers and enablers (which determine why people travel the way they do and use the travel modes they do) have been discussed. However, with regard to active travel to school, there was limited evidence on the key factors influencing the activity, because most of the research encompassed children's active travel behaviour in adults and auto travel behaviour, and did not explicitly address the complexities existing in the decision-making process about children's travel to school. Therefore, recent literature that proposed explicative frameworks or that addressed factors or influences in relation to the journey to school was reviewed. For example, urban form was discussed as a factor of influence on children's transport behaviour (McMillan 2005), as some of its components (land use, patterns, transportation systems and urban design) affect children and parents' perceptions of safety. The culture of car use, found at individual, family, wider societal and community levels was also considered a factor of influence on children's transport, as it affects their preferences, independence and perceptions of other travel modes. (Brunton et al., 2006). A combination of physical environmental, external factors (weather, costs and policy) individual factors (attitudes, age, gender and distance to destinations) was also considered to influence the decision-making process about the trip to school (Panter et al, 2008). Policy is also a factor that has an indirect effect on active travel by funding of infrastructure projects to support the physical or social environments (Sirard & Slater, 2008). A two stage decision-making process that responds to the perceptions of safety and to the easiness and convenience of travel modes against other aspects (time, distance, multi-task) was also identified in the literature as a factor of influence in active travel (Faulkner et al., 2010). Finally, most recent literature considers household and family factors (presence of children, multipurpose journeys, dual-career and lone parent households, busy schedules, parental concerns and attitudes) to influence the levels of short walking and cycling trips in urban areas (Pooley et al., 2011).

According to the literature reviewed, there are clear and complex factors, which influence children's and young people's walking and cycling at individual, family, community and wider societal levels. Based on this information, a synthesis of frameworks of factors and variables that affect children's active travel to school was produced and presented in fig 2.7 of this chapter. The synthesis of frameworks was subsequently used to guide the

methodology of this research. In view that Policy decisions at all levels have an indirect effect on active travel by funding initiatives and infrastructure projects supporting active travel to school (Sirard & Slater, 2008), the policy context that frames active travel to school in the UK and its approaches will be discussed in the following chapter of this thesis.

CHAPTER 3: ACTIVE TRAVEL TO SCHOOL IN A POLICY CONTEXT

3.1 Introduction

As discussed in the previous chapter, policy is one of the factors that has an indirect effect on active travel by funding of infrastructure projects to support the physical or social environment (Sirard & Slater, 2008); hence the policy context surrounding the trip to school in the UK is discussed in this chapter. The complex setting of national policies, strategies and schemes from diverse areas such as education, health, sustainability, transport planning, social justice and inclusion developed for the trip to school over the past twenty-five years is discussed in section 3.2. The wide range of approaches adopted by policy and the gaps between policy and practice is discussed in section 3.3. Finally, a summary is presented in section 3.4 of this chapter.

3.2 The trip to school in a policy framework

In the UK, the journey to school has been at the centre of public debate and focus of political structures addressing not only environmental concerns related to the excessive use of private vehicles but also looking to increase children's mobility (Stevens, 2010). Most of such debates are developed at a national level but shape the policy and strategies at a local level. A series of ongoing government policies, strategies and schemes from diverse areas such as education, health, sustainability, transport planning, social inclusion and road safety, that have been developed and used over the past twenty years, will be discussed in more detail in this section.

3.2.1 Education

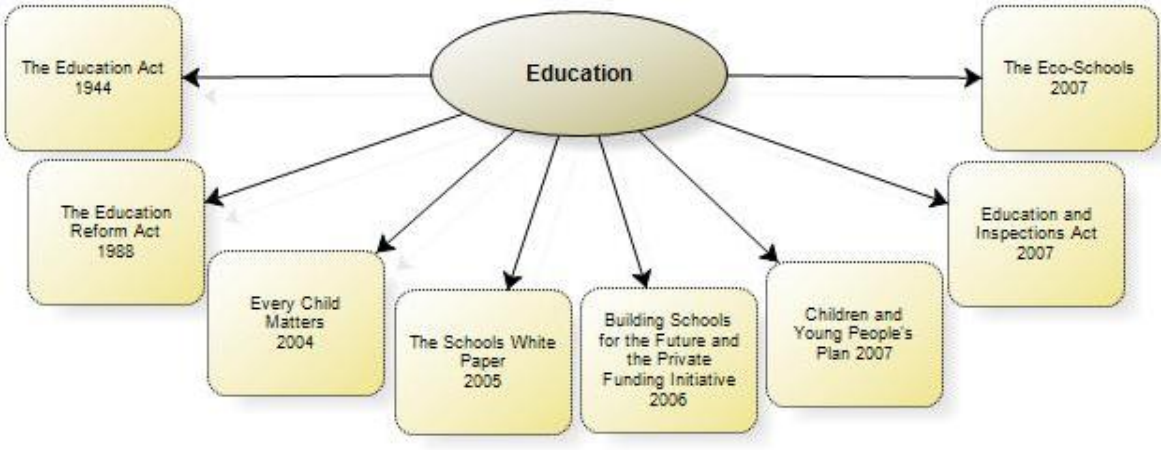


Figure 3.1: Education policies affecting active travel

As can be seen in Figure 3.1, education policies have affected active travel in the UK for a long time and in diverse ways. For example, home to school transport policy has remained largely unchanged since the **1944 Education Act** when Local Authorities (LAs) were placed under a duty to make transport arrangements for children whose school was beyond the 'statutory walking distance' to ensure parents did not have a defense against non-attendance at school by their children. The 'statutory walking distance' is used to determine if a pupil lives close enough to walk to school and is calculated as the shortest route along which the pupil, accompanied if necessary, can walk with reasonable safety, and includes footpaths and roads from the child's permanent home to school. This means that where Local Authorities consider that home to school transport is necessary to secure a child's attendance at school, it must be provided free of charge. Local Authorities have discretion in deciding whether transport is necessary, but they must provide free home to school transport for pupils of compulsory school age who are attending their nearest suitable school, provided that the school is beyond the 'statutory walking distance' of 2 miles for pupils below the age of eight; 3 miles for those aged eight and over; and for children unable to walk because of Special Educational Needs (SEN), disability or mobility problems, or an unsafe walking route. **The Education and Inspections Act** (2006) extended entitlement to free school travel for pupils entitled to free school meals or whose parents are in receipt of maximum Working Tax Credit. Eligible primary school pupils aged over eight are entitled to free travel to their nearest school where this is more than two miles from their home. Other than that, children living less than two miles away from home need to make their own arrangement for transport.

On the other hand, **The Education Reform Act** (1988) established the concept of Grant Maintained schools and endorsed parental choice. It also gave schools some freedom from the Local Education Authority policy and a degree of autonomy over budgets and admissions. The emphasis on parental choice provided by the Act, has been a subject of increasing importance in party political debates from the 1980s onwards and was reinforced by a 1989 High Court judgment (Regina v. Greenwich, London), which ruled that it was unlawful for a local authority to view potential pupils living some distance away from a school less favourably than potential pupils living close by.

More recently, **The Schools White Paper** (DfES, 2005b) 'Higher Standards, Better Schools For All' places duty on local authorities to support choice and flexibility by assessing the travel and transport needs of all children and by promoting sustainable travel to school. This legislation particularly benefits low-income families, as local authorities have to extend entitlement to free home to school transport for secondary aged pupils to any one of the three nearest suitable schools where the distance travelled is

between two and six miles; and for primary aged pupils aged over eight, to their nearest school where this is more than two miles from their home. The Schools White Paper encourages schemes and innovative approaches looking to increase the proportion of pupils travelling by sustainable means to school (Stevens, 2010). Aligned with this, the **Education and Inspections Act**, in force since 2007 (DfES, 2006a), places local authorities with the duty to promote the use of sustainable transport for the journeys to school and also requires a school travel strategy in order to improve accessibility to schools. The Act also aims to enforce positive behaviour in public space and on public transport services by empowering Head Teachers to take action in cases of unacceptable behaviour around the school premises (Stevens, 2010).

The Government takes a different approach, with the **Every Child Matters** policy framework (DfES, 2004b), which aimed to improve children and young people's well being by 2010 through the development of school travel plans and the promotion of sustainable travel. Furthermore, through its associated strategy of 'extended schools', it focused on integrating education, health and social services around children's needs by giving children and parents access to facilities and services at the school site from 8am to 6pm. This policy aimed to benefit parents in full time employment and single parents by providing pre-school and post-school childcare facilities. Additionally, according to Stevens (2010) the Government's vision for sustainable development also encompasses the Private Finance Initiative and Building Schools for the Future programmes (CABE, 2006), focused in building of schools, grounds and facilities that support sustainable behaviours among pupils, parents and local communities. The aim of this scheme is that by 2020, all schools become models of sustainable travel, reducing car use and providing facilities for cycling, integrated community cycling routes, grant-funded walking buses, and public transport availability to children and young people (DfES, 2003b).

On the other hand, the **Children and Young People's Plan** (DCSF, 2007) aims to empower children and young people to achieve their full potential by encouraging parents' involvement in their children's learning and by providing more opportunities for children to play an active role in school, their communities and society. However, the implementation of the Children and Young People's Plan relies on a high level of inter-agency governance, encompassing, for example, social care, education, health, learning and skills councils, and the police (Stevens, 2010). A similar approach is taken with the Eco-Schools programme (DCSF, 2006) which aimed to raise the profile of schools in the wider community and to promote environmental awareness through a holistic approach. The programme works by encouraging teamwork between school pupils and staff and members of the local community (parents, the local authority, and the media and local

businesses) in order to achieve a shared understanding of what it takes to run a school in a way that respects and enhances the local environment and community. As with the Children and Young People's Plan, the Eco-School programme also requires a high level of coordination by all the stakeholders in order to carry it out.

3.2.2 Health

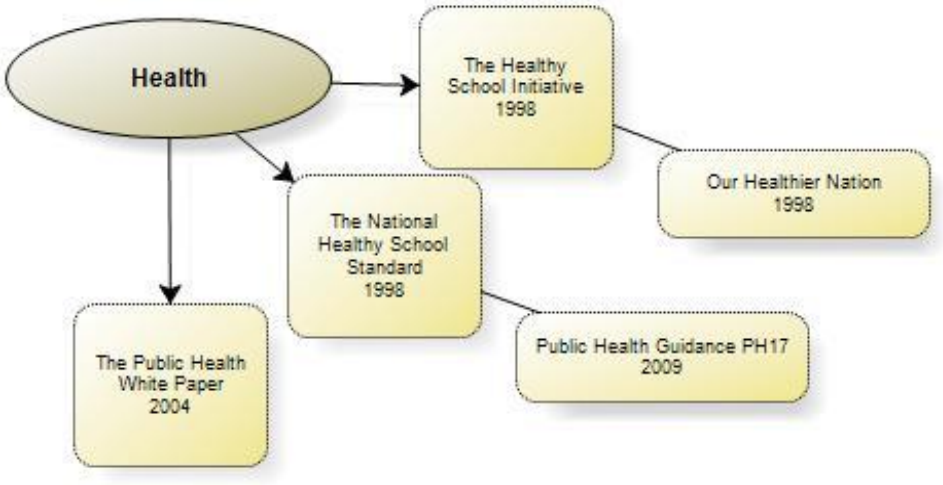


Figure 3.2: Health policies affecting active travel

As can be seen in Figure 3.2, health policy has focused on the trip to school in diverse ways: for example, a joint initiative between the Department of Health (DoH, 1998) and the then Department for Education and Employment (now The Department for Education and Skills (DfES) launched, in 1998, The **Healthy Schools Initiative** with the aim to raise children, teachers, families and local communities' awareness to the important opportunities in schools for improving health (Stevens, 2010). Included in the strategies that followed from this initiative is the 'Safe and Sound' challenge, which aimed to encourage healthier ways for children to travel to school.

The Government highlighted the importance of improving the health of school children as a priority group in a Green Paper on public health entitled **Our Healthier Nation** (DoH, 1998), which also aimed to reduce inequalities in health by addressing the wide range of factors that affect health. Furthermore, the Government highlighted that transport, mobility and education all have a major role to play in fighting against coronary heart disease, stroke, and accident prevention.

In line with government's goals, **The National Healthy School Standard** (DoH, 1998) aims to promote social inclusion and to raise educational standards. Within this guidance, a 'Healthy School' is considered to be "a school that actively seeks to promote and

improve the health and well being of the whole school community through all aspects of school life" (Stevens, 2010; p. 68). In addition, one of its priority areas is to promote and enable children and young people's participation in schools and their communities. The **Public Health White Paper** (DoH, 2004) 'Choosing Health; making healthy choices easier' also outlines the goal for all schools to be 'Healthy Schools'.

As from 2009 and over the following four years, public health responsibilities are being transferred from the NHS to local authorities, these are to consider how to give greater priority to healthy active lifestyles through the promotion and enabling of active modes such as walking and cycling, as part of the daily journey to and from school. As a result, **public health guidance PH17** was issued (NICE 2009) not only for the use of local authorities but also for all those who are involved in promoting physical activity among children and young people, such as children's trusts and services, community and voluntary, Early Years providers, Government departments, the police, etc. The guidance reflected the Public Health White Paper targets and provided recommendations about the way to promote the benefits of physical activity and encourage participation; the importance of consultation with children and young people; planning and providing spaces, facilities and opportunities; training people to run programmes and activities; and the way to promote physically active travel such as cycling and walking. As part of a national policy, the guidance recommended to deliver a long-term national campaign (minimum 5 years) to promote physical activity among children and young people as a means to change behaviour at population, community and individual levels. The campaign was to be integrated with and support other national health campaigns and strategies based in incentive schemes (such as 'Change4Life' and other walking and cycling schemes) looking into increase participation in physical activity such as play and sport in order to reduce obesity.

Walking and cycling promotion at school level, on the other hand, generally targets pupils that live within what is considered a 'walkable distance' from schools. According to the above mentioned public health guidance PH17 (NICE 2009) it is assumed that a distance of 3200 meters (2 miles) constitutes a daily walkable distance (per journey) for children at primary and secondary schools. This information has been later replicated by other organisations that advocate sustainable transport, such as Sustrans (2010a).

3.2.3 Sustainability

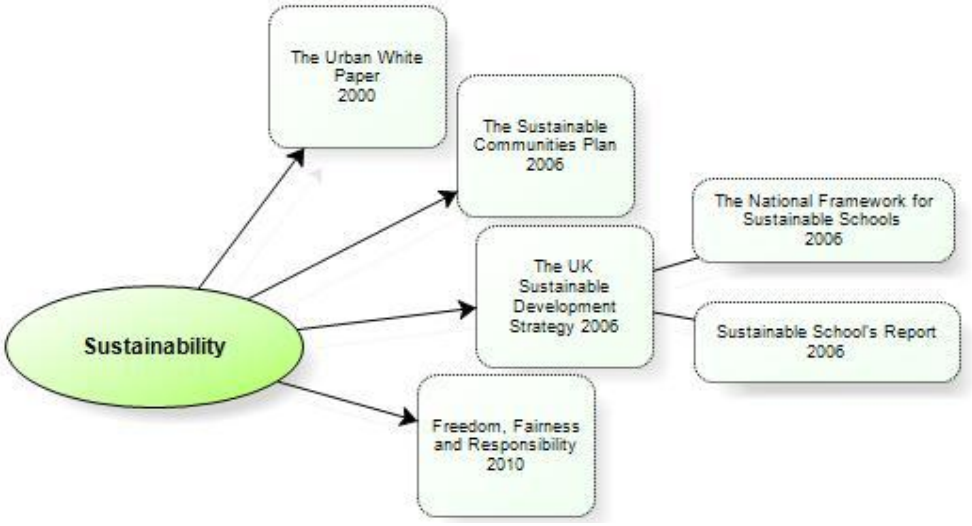


Figure 3.3: Sustainability policies affecting active travel

The tendency, over the past decade, has been to make urban environments more attractive places in which to live, work and play because if urban places become more accessible and attractive, people would opt for more active and sustainable choices of travel (Stevens, 2010). As seen in Figure 3.3, diverse sustainability policies affect active travel to school in the UK. For example, **The Urban White Paper** (DETR, 2000b) aims to provide a more 'convivial' environment (Shaftoe, 2008) by integrating diverse aspects such as better urban design and planning, promoting new investment and enterprise, improving environmental protection, providing accessibility for community socialisation and improving safety and attractiveness of public space. As reflected in the report 'Living Places: Cleaner, Safer, and Greener':

> *We need stronger communities and an improved quality of life. Streets where parents feel safe to let their children walk to school. Where people want to use the parks. Where graffiti, vandalism, litter and dereliction is not tolerated. Where the environment in which we live fosters rather than alienates a sense of local community and mutual respect (ODPM, 2002).*

Furthermore, spatial policy has focused on achieving sustainable communities with a balance of employment, mixed housing and social facilities, accessible to a range of socio-economic groups. For example, the **Sustainable Communities Plan (2006)**, proposes that such strategies should *'meet the diverse needs of existing and future residents'* and in doing so, they should be *'sensitive to their environment and contribute to a high quality of life'* (ODPM, 2005, p.1). These have become guiding principles, which attempt to link social, economic and environmental issues with urban development and planning. This

kind of approach seems generalised throughout the UK, as there is evidence that many other institutions and programmes have adopted it. For example,

- CABE (2008) suggested that to encourage people to walk and cycle around their neighbourhoods rather than use their cars, it is critical that 'streets' (that make up about 80% of the urban public spaces in the UK) are designed in a convenient way for everybody.

- Sustrans (2007) suggested that certain features and characteristics in urban areas, such as high densities, mix land use, slow traffic and a pedestrian and cycle friendly infrastructure encourage levels of walking and cycling and reduces risks to pedestrian and cyclists.

In this context, the Sustainable Communities Plan adopt a more holistic view of the trip to school as it recognises the barriers to sustainable mobility as being linked to urban design and household choice.

On the other hand, the government's goals of sustainable development advocated through the **Sustainable Development Strategy (2006)** are: living within environmental limits and ensuring a strong, healthy and just society. The goals are to be achieved through sustainable economy, good governance and using sound science responsibility (SDC, 2006). In its **Sustainable Schools** (DfES, 2006b) report recommends to all the schools to operate as models of good practice in sustainable development principles, therefore the school site is regarded as the key to target children and their travel behaviour; and to educate them about the importance and urgency for sustainable development through their participation in the construction of their own School Travel Plans.

In addition, the **National Framework for Sustainable Schools** (DCSF 2006) focuses on ways in which sustainable development can be embedded into whole-school management practices; introduces eight 'doorways' through which schools may choose to initiate or extend their sustainable school activity; and provides practical guidance to help the school to achieve it. The 'doorways' are: food and drink; energy and water; travel and transport; purchasing and waste; building and grounds; inclusion and participation; local well being; and global dimensions. Each doorway may be approached individually or as part of a whole-school action plan and many of the doorways can be interconnected. Doorway 3: travel and transport promotes a sustainable journey to school within an integrated approach of curriculum, campus and community and the child is theoretically centred within this approach. The logic behind it is that information provided via school, will trigger

individuals to modify their daily behaviours, lifestyles and practices and become more sustainable (Stevens, 2010).

In the 2010 legislative programme **'Freedom, Fairness and Responsibility'**, the UK Government expressed its support for sustainable travel initiatives, including the promotion of cycling and walking; to make the transport sector greener and more sustainable; with tougher emissions standards and support for new transport technologies (HM Government, 2010). The current programme proposed a 'Sustainable Transport Fund', driven by the increasing car use and its detrimental impacts on "the poorest and most vulnerable in society". The fund is in place to support local authorities 'wishing' to introduce packages of measures encouraging walking and cycling initiatives to improve integration between travel modes and end-to-end journey experiences, better public transport and improved traffic management schemes (Kay et al. 2011). The goal of this national policy is to deliver a transport system that "works better for everyone", without damaging the health of communities or leaving a "legacy of environmental damage to children". The programme however, does not require any compliance from the Local Authorities and does not specify any guidance in how to achieve it; therefore, is up to the local authorities to choose the appropriate action.

3.2.4 Transport

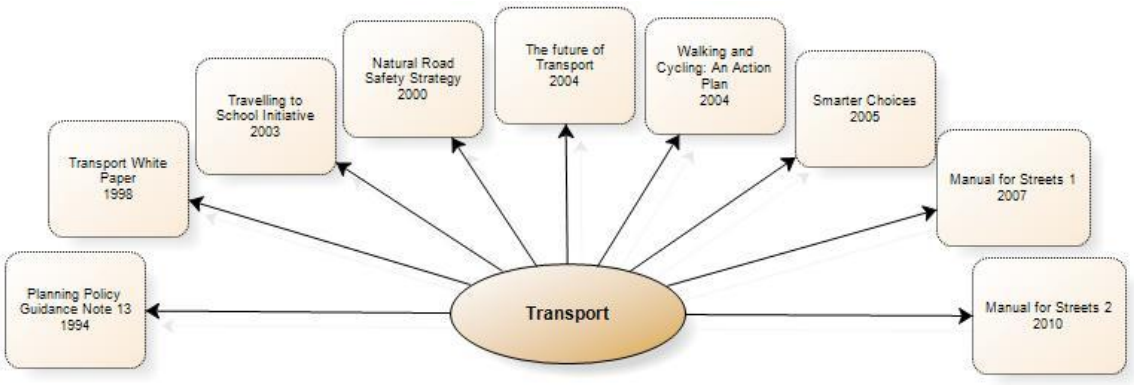


Figure 3.4: Transport policies affecting active travel

At a National level, as seen in Figure 3.4, transport policy has been interested in reducing car dependence in order to tackle the transport sector's contribution to global warming and climate change. For example, the Department of Environment and the Department of Transport published in the early 1990's the **Planning Policy Guidance Note 13** (PPG13) (DETR, 2001). The guidance introduced land use policies focused in reducing the need to travel in order to reduce dependence on the private car by requiring local authorities to

adopt policies which *'maintain and improve choice for people to walk, cycle or catch public transport rather than drive between homes and facilities which they need to visit regularly' (*PPG13, Section 1.8). Furthermore, the guidance recommends that new schools are located so *'that they are accessible on foot or bicycle'.* (PPG13, Section 3.15). Accordint to Stevens (2010), the guidance became a benchmark by integrating land use and transport, and although has only been focused on new urban developments, it formed part of an approach that diverted funding away from new road buildings towards a combination of approaches to reintroduce public transport, cycling and pedestrian initiatives. This allowed authorities to use a range of transport measures according to their individual physical, social and economic context.

The Department for Transport has produced, since 1998, a number of publications aimed at encouraging public transport, walking and cycling in relation to the journey to school, such as the **Transport White Paper (DfT, 1998) 'A new Deal for Transport: Better for Everyone'** that encouraged local authorities to view walking as a key means of travel, setting out a number of objectives achievable within the walking strategies produced by local authorities. The paper sets out the government's reasons for considering the school journey as an area for action within its integrated transport policy and it signalled the introduction of the *School Travel Plans (STP).* According to Stevens (2010), the travel plans were conceived as "simple practical measures in order to encourage the use of alternatives to the car for the journey to school" (p.59). Following on from the White Paper, a school travel advisory group (STAG) of experts in the field of health, education and transport was created with the aim 'to raise awareness of the profile of school travel issues, to lead dissemination of best practice, to identify methods to reduce car usage for school journeys and to advise on the integration of the transport, health and education policy initiatives to Ministers" (DETR, 1999b as cited by Stevens, 2010; p. 59). However, in 2000, ministers disbanded the STAG, as a different kind of panel with more focus on implementation and rather less on advice and research was needed. As a result, School Travel Expert Panel (STEP) was created. The panel had the main functions to provide a source of ad hoc advice in dealing with difficult issues and to review implementation and emerging results; and was formed from a number of key external stakeholders from bodies such as the Confederation of Passenger Transport, Sustrans, Locals Authority School Travel Forums, the National Governors Council and the National Association of Head Teachers. In addition, the members of the panel attended termly meetings with officials from the Department of Transport and for Education and Skills. According to (Stevens, 2010). in certain ways, the composition of the panel reflected the number of different groups that get affected by the many political frameworks and changes to policy that are interrelated within the complexity of the trip to school.

In 2003, a joint initiative of the Department for Education and Skills (DfES) and the Department for Transport (DfT) led to the establishment of the central policy framework developed to specifically focus on the trip to school. **The Travelling to School Initiative** (DfES, 2003b) scheme covered a series of measures aiming to reduce car use, subsequent congestion and pollution; and to increase the use of sustainable modes of transport for pupils' travel to school. The initiative made funding available to Local Authorities to appoint School Travel Advisers whose main role is to work with schools to develop **School Travel Plans.** In addition, the Travelling to School Initiative allowed schools to develop travel plans that meet specific criteria to apply to the DfES for capital grant funding (approximately £5000 per primary school and £10000 per secondary school). It was the government's aim that all the schools had a school travel plan by 2010 (Stevens, 2010).

It is required that the School Travel Plans (STP) look in detail at children's needs on the school journey in order to reduce accidents and cut congestion at the school gates; encourage the use of walking, cycling and public transport as alternatives to the car; improve children's health and fitness through the use of more active modes; equip children with better road awareness; and give them familiarity with public transport. The initiative has a collaborative strategic aim where parents, governors, teachers and children work together to find the right solutions for their school and the local authority; other outside agencies and the wider community get involved to complete a integrated approach. The plans are geared to the needs of a primary or a secondary school and a range of professionals such as road safety officers, environmental strategy officers, child pedestrian training officers, traffic engineers and cycling officers provide additional support in a variety of ways. Initially, the plans focused on improvements on the route to schools such as traffic calming, 20mph zones, cycle lanes and safe crossings. Overtime, other approaches have developed to include changes within the school (such as provision of cycle stands) and particular strategies such as 'walking buses' and more recently 'cycle buses'. These involve volunteer parents escorting groups of children by foot or by bike as part of a pre-arranged group along a set route, usually with a 'timetable' for what time pupils will be collected or dropped off from the walking or cycling bus to and from school. Such groups are set up informally by parents and the involvement from the local authority is key, as it is required that all routes are risk assessed and parents receive training, often in return for limited liability insurance from the local authority. Funding has also been available for these strategies, e.g., in November 2006 the Department for Children, Schools and Families announced a grant scheme to help fund 'walking bus' schemes where schools could bid for a £500 or £1,000 grant which lead to increases in self reported walking

amongst 5-11 year olds and to reduced car use for children's journeys to and from school for a period up to 30 months (DCSF, 2006).

Walking promotion in the school setting has often been based on incentive schemes. These include competitions between classes to encourage walking, or agreeing that certain days may be made key days for walking to school each week, such as WOW days (Walk on Wednesdays). Walking promotion is commonly focused on primary schools where distances are considered short i.e. under 1 mile. For example, schools in Ireland worked on a three-pronged approach (safety, health and environment) to undertake a Travel Pilot Programme to reduce car travel to school and increase walking and cycling to school on a regular basis through the implementation of UK initiatives or schemes such as:

- WOW: Walk On Wednesday or Walk Once a Week days
- COW: Cycle Once a Week
- The Golden Boot Challenge: to promote alternative modes of transport on the school run

Cycling promotion, on the other hand, is focused on the school journey as one where children can be encouraged to travel by bicycle and often comprises a range of measures to encourage school children to take up cycling. These measures include information campaigns to promote cycling supported by classroom activities, games and raffles. This kind of programme for children may address the safety concerns of parents and carers, by providing cycling proficiency schemes for children and meetings with parents to tackle their worries about children cycling to school.

Another strategy linking the journey to school and road safety policies was the **National Road Safety Strategy** (DETR, 2000) which aimed to achieve, by 2010, a 40% reduction in the number of people killed or seriously injured in road accidents; a 50% reduction in the number of children killed or seriously injured; and a 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometers (Stevens, 2010). .

The policy paper concerning the road safety strategy reiterated the government's desire for schools to develop individual travel plans and highlighted the need to increase levels of personal safety for children around school sites. In particular, there has been interest in the safety benefits that can be achieved from road safety education and hard measures that often take place as part of school travel plans, for example, speed limit restrictions, parking restrictions and safety zones. In terms of road safety education, it is focused on

motorists and children; and it was looking to influence the early attitudes of young people, for example, having them adopt a responsible attitude towards other road users, including cyclists, before they learn to drive. Some UK boroughs have introduced pedestrian skills training for young children moving to secondary school because there is an observed increase in pedestrian casualties at this stage, mainly because many children are making unsupervised pedestrian journeys for the first time and most of them are used to being driven to school, which has not allowed them to develop the necessary 'street skills' (London Councils, 2008). As in 2007, on average 37 children were killed or seriously injured on the roads in Great Britain, the government funded more strategies aiming to reduce the number of road deaths and serious injuries by 50% in 2012; £140 million of pounds have been invested by the Department of Transport in promoting strategies amongst children such as safe cycling training through Bikeability and other large-scale safety campaigns such as 'The Green Cross Code', 'Hedgehogs', 'Be Safe Be Seen', and 'The Tales of the Road' (DfT 2000).

The government outlined in 2004 a long-term strategy (over the next thirty years) for transport in the White Paper **'The future of Transport'** (DfT, 2004). This Paper acknowledges that whilst additional infrastructure will be necessary, simply increasing the capacity and the number of roads is not the answer in the long term; therefore, it proposes to apply sustained investment, to improve transport management and to plan ahead involving stakeholders into transport decisions taken alongside other policy areas such as liveability and sustainable communities (Stevens, 2010).

In order to increase levels of walking and cycling, The Department for Transport (DfT, 2004) also announced a new package of measures through the '**Walking & Cycling: an Action Plan'** which aims to promote these as healthy modes to travel and encourages local authorities to focus particularly on the trip to school; according to Stevens (2010), this leans on earlier strategies aimed to increase cycling trips, for example, the National Cycling Strategy (DETR, 1998b) was an early strategy document linked to the Transport white paper (1998) which proposed plans to encourage cycling and provided guidelines to local authorities to improve the safety, fitness an independent mobility of children through the trip to school . A later publication (DfT, 2000), suggested that the walking environment should be *'*connected', 'comfortable', 'convenient' and 'convivial'. Two more publications were produced to deliver a national framework (DfT, 2003a; DfT 2004) and in addition, The Institution of Highways and Transportation (2008) guidelines suggested the requirements of good cycling infrastructure as 'coherence', 'directness', 'attractiveness', 'safety' and 'comfort'. Despite the number of publications, however, the need of local authorities for more specific and detailed guidance for the design and development of the walking and

cycling environment was evident; therefore, local authorities began formulating their own independent walking and cycling guidelines as a response.

In 2005, the Government published '**Smarter Choices - changing the way we travel'** (DfT, 2005a), which provided techniques for influencing people's travel behaviour towards more sustainable options through school, workplace and personal travel planning, by improving public transport and also marketing services such as travel awareness campaigns, setting up websites for car share schemes, supporting car clubs and encouraging teleworking (Stevens, 2010).

More recently, with the publication of the **Manual for Streets** (DfT and CLG, 2007) **and Manual for Streets 2** (CIHT 2010), the government takes a new and holistic approach and aims to change designers' and local authorities' approach to street design by encouraging to 'put people first' and emphasizing that streets should be places in which people want to live and spend time in, and not only transport corridors. This new approach advocated in the Manuals will be discussed in more extent in section 3.4.5 that refers to the key proponents of 'people first and car second'.

3.2.5 Social Justice and Inclusion

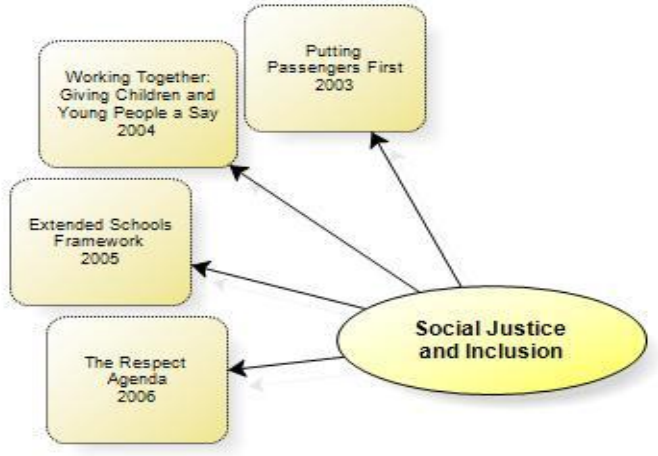


Figure 3.5: Social Justice and Inclusion policies affecting active travel

Given the need for accessibility, social inclusion and justice, the key goal of more recent transport governance in the UK, as seen in Figure 3.5, has been to intervene in the provision of transport, infrastructure and services, so that a range of social policies can be achieved (Stevens, 2010); for example, the Government's policy to improve accessibility to public transport and tackle congestion is broadly outlined in the **'Putting Passengers First' report** (Bus partnership Forum, 2003). The report states that all communities will

benefit from the proposals to strengthen voluntary and statutory partnerships, recognises the different contributions of operators and local authorities and proposes an enforcement of bus punctuality. The proposals of the report aim to enlarge the range of measures that are available to local communities, such as encouraging local bus companies to provide accessible public transport and to encourage children as passengers on public transport through specific schemes such as timetable alterations and pricing strategies.

A different Governmental policy response to improve levels of accessibility and mobility to address the environmental concerns that increased pro-public transport mobility may cause, is the '**Extended Schools framework'** (DfES, 2005a). The extended school strategy encourages the spatial concentration of social services at the school site to increase and promote accessibility and inclusion. The school site houses facilities as clinics so the journey to the site is regarded as a multi-end use journey.

On the other hand, the **'Working together: giving children and young people a say'** (DCSF, 2004) is statutory guidance which centres its strategy on developing a culture of participation and consultation in schools and local education authorities, with the objective to encourage participation in a variety of forms which influence school and community life. The strategy advocates for mechanisms to be established in order to get children involved in policy development linked to school travel through school councils and task groups.

Similarly, the **'Respect Agenda'** launched by the Government in 2006, sets about finding ways to reduce anti-social behaviour in public spaces within 'at risk' groups, such as children and young people, and in theory, according to Stevens (2010) and Gaskell (2008), it aims to embed a cultural change of respect, by supporting respectful behaviour such as participation in schools, sports, leisure activities and communities. Although the Association of Directors of Social Services did welcome the new 'Respect action plan', it had strong concerns about funding; stressing that the £70 million allocated for achieving the agenda was "inadequate". Initial central cash kick started schemes but then local authorities were required to pay for the work from overall funds, already tightly squeezed in social care.

3.3 Graphic synthesis of active travel to school in the UK policy context

A graphic synthesis where the complex context of government policies, strategies and schemes addressing active travel to school within the UK Policy context is shown in Figure 3.6

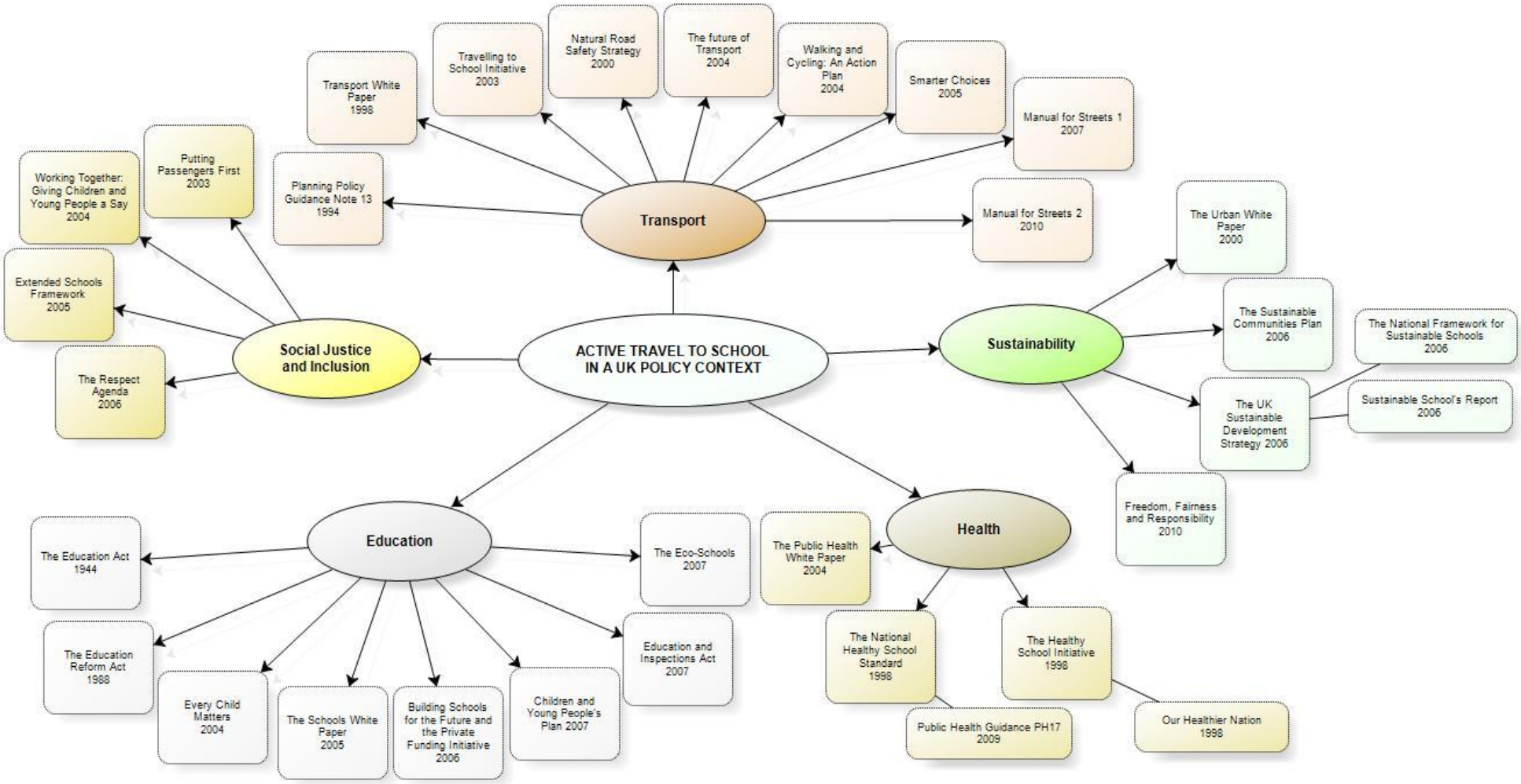


Figure 3.6: Graphic Synthesis of Active Travel to School in the UK Policy Context

3.4 The gap between policy and practice

As discussed in the previous section of this chapter, the journey to school has been framed within a complex context of national policies, strategies and schemes from diverse areas such as transport planning, sustainability, education, health, and social justice and inclusion developed and used over the past twenty five years in the UK (Stevens, 2010). However, there seems to be significant differences between the aspirations of the policy makers and the challenges that local authorities face in its implementation which is reflected in the fact that after many years of nationwide strategies, the change in school travel behaviour has been insignificant; as evidence shows that shift towards active travel modes has been negligible, and car use has not declined (Stevens, 2010; DfT, 2008). This can be explained as a result of policy, which in many cases adopts diverse, ambiguous, exclusionists, conflictive and/or inconsistent approaches in relation to school travel.

3.4.1 Behaviour control and social exclusion

Knowles et al (2008), argues that for a considerable period **'**highly car-centric' approaches to transport policy was taken as a good thing by governments and academics, leading to policies such as 'predict and provide' type approach, that seeks to estimate future traffic demand and build road capacity accordingly; and that brought as consequences that a) the needs of a minority that have no access to a car would be easily overlooked; b) private car use would increase; and; c) public service use would decline.

According to Tolley et al., (1995), there is a distinctive geography of transport for children in that they have trip lengths, purposes, timing, modes and routes that differ from adults in many ways. A child is highly likely to deviate from 'logical' straight routes home, attracted by parks, alleyways, ice-cream vendors and friend's houses. However, in industrialised societies this geography is changing as the car increasingly threatens children's safety. The authors of a study of children's independent mobility entitled 'One False Move' state,

> *Transport policies in all motorized countries have been transforming the world for the benefit of motorists, but at the cost of children's freedom and independence to get about safely on their own – on foot and by the bicycle that most of them own. This change has gone largely unnoticed, unremarked and unresisted'* (Hillman et al 1990 p.110-11).

Within this context, the traditional approach to children in urban transport and environmental planning has been to focus on behaviour control and modification, seeing the child as an object to be manipulated to fit into the adult world (Davis et al, 1996). This conceptualisation is based on the social construction of children as 'less than complete individuals'; which has resulted in a set of policies that serves the interests of adults and marginalises the interests of children (Davis et al, 1996). In this social construction, children are also seen as beings in need of protection from the adult world, e.g., adults often restrict and segregate children to places that are deemed to be safe for them to play and go in order to exclude them from the dangers of the environment (Noschis, 1992). For example, policy (such as the National Road Safety Strategy 2004) focused on training children to be careful and to be scared of cars, rather than attempting in most of the cases to limit the traffic; or strategies such as the walking or cycling buses which have been adopted by a number of local authorities not only as a way to engage children in daily exercise activity but with an additional goal to increase their independent mobility (Engwicht, 1999; Kearns and Neuwelt, 2003; Collins and Kearns, 2001; Kingham and Ussher, 2007); however, Kearns et al (2003) assert that due in part to the way in which they have been put in practice, whilst it allows children's exercise, environmental exploration and social interaction, these particular strategies do little to increase children's independent mobility as they are controlled and managed by parents, serve to reinforce aspects of adult authority and notions of child vulnerability, thus limiting children's freedom to experience and make autonomous decisions in their everyday mobility which finally translates into social exclusion.

There is also a distinctive geography of transport for women. Due to their multiple roles, women have to manage complex chains of trips, more likely to be for escort purposes such as taking small children to the nursery, older children to school, going to the shops, going to part-time work, collecting the children in the afternoon, taking them to sports or social engagements, etc. According to Tolley et al., (1995), the different experience of women is a function not only of their roles but also of their differential access to transport; as women have less access to a car available at any given time than men, and although women's trips are similar in number to men's they tend to be for shorter distances, off-peak and less often in a car. In addition, women's time budgets are different from men because of their multiple activities; particularly in relation to escorting children; which result in a fragmentation of time that added to their lack of access to cars leads to an even more restricted mobility as they become more reliant on slower modes of transport such as walking or on less flexible ones such as buses (which restrict the range of destinations that can be reached within the time available between activities). As a result, Tolley et al., (1995) argues that women (and by extension children) tend to be more limited in their

physical space, which contrasts markedly with the extensive and uninterrupted physical worlds of car-driving men. In addition, the same authors consider that: planners often are mistaken in the assumption that men and women have equal power and control over resources; that the household consists of a male breadwinner and a woman homemaker, when in reality women head one-third of the world's households; and often the productive work that women do as income earners and in community management, such as in organising the provision of basic services and education, is also underestimated. For all of these reasons, it can be said that transport planners also frequently ignore women's needs. This is also reflected in the way that data informing transport decisions e.g., Tolley et al., (1995) found that where data are collected, women's current travel patterns are confused with their travel needs, and it has to be understood that women travel less than men in part because current transport provision makes it difficult for them to travel more.

According to Stevens (2010), the link between lack of accessibility to goods and services and social exclusion has been illustrated by numerous transport studies (SEU, 2001; 2003; Hine and Mitchell, 2001) and it is agreed that people's ability to participate in society can be affected by their individual's personal characteristics, lifestyle, geographic area and the dominant institutional structures surrounding them. Seven categories of exclusion have been recognised in relation to transport (Church et al., 2000): Physical exclusion, where physical barriers prohibit accessibility, for example, mothers with children in prams; geographical exclusion, where poor transport provision can be augmented by fixed-route timetables not matching with work schedules; exclusion from facilities, due to distance between home and services, for example, education and unavailability of any method of transport; economic exclusion, where costs of travel are prohibitive; time-based exclusion, where demands of time restricts access; fear-based exclusion, where anxiety and fear influence how public space and services are accessed; and space exclusion, where space-management strategies exclude people to determined spaces. People on low incomes, ethnic minorities, women, the elderly, disabled and children seem to be the most affected by transport exclusion (Hine and Mitchell, 2001). The reason being those are the groups that have lower levels of car ownership and therefore, make fewer journeys but walk more and also use public transport more, the bus in particular (Stevens, 2010).

3.4.2 Towards inclusion

More recently, literature illustrates progress in Governments' approaches in relation to school travel choice, which is reflected in policies from the social justice and inclusion agendas promoting a shift away from car travel towards more active modes of transport (DfT, 2005a; DCSF, 2007). The evidence shows that planners and policy-makers are

increasingly becoming sensitised about the direct impact that their decisions about the environment and mobility are having on children; as they have started to acknowledge that everyday mobility is not merely a rational, linear choice but part of wider issues linked to lifestyle and household; and also that the environment shapes children's lives in many ways (Freeman and Vass, 2010). For example, the White Paper 'The future of Transport' (DfT, 2004) seems to acknowledge the complexities existing in relation to school travel choice being part of wider issues linked to lifestyle and household management and mobility patterns; the Sustainable Communities Plan (2006) which adopts a more holistic view of the trip to school as it recognises the barriers to sustainable mobility as being linked to urban design and household choice; and Every Child Matters (2004) which in its Extended School strategy addresses children and parent's diverse needs (employment pressures and the rising number of lone parents) through the implementation of pre and post-school facilities.

The shift in those approaches can be explained as the result of the impact of the United Nations Convention of the Rights of the Child (CRC 1989). In 1989, the United Nations adopted a document with implications for how children should be perceived and treated. This was a turning point for children as it leads countries such as the UK, to "rethink the extent to which children have the right and responsibility to 'participate' in shaping their own futures and the futures of their communities" (Hart 1997, pp4). The document set universal standards for the protection and development of children and also recognises children as developing citizens. From the year that the document was issued, all over the world young people became involved in the planning, design, monitoring and management of the physical environment.

Although child-centred approaches and children's participation has been encouraged by the UK Sustainable Development Strategy (2006); The National Framework for Sustainable Schools (2006); and The National Healthy School Standard (1998); problems have arisen in the implementation of plans for collaborative strategies which require the integrated approaches of local authorities, schools and communities; as guidelines produced for this have been perceived complicated and requiring the guidance and assistance of a specialist, for example, the School Travel Plans have been subject to criticism in early formulation stages, as an initial evaluation of the initiative (DfT, 2008) found that the vast majority of schools would not have been willing or able to write a School Travel Plan without the assistance of a dedicated and specialist School Travel Adviser within the local authority (Stevens, 2010).

The implementation of certain schemes which relies on a high level of inter-agency governance, may be difficult to achieve for practical reasons; for example, the Children and Young People's Plan (DCSF, 2007) encompasses social care, education, health, learning and skills councils, and the police. In addition, as over the past decade the government vision has been to delegate more power and responsibility to the Local Authorities and to individual schools with an emphasis on self-assessment and self-improvement, further challenges faced by them include the responsibility that they have to choose appropriate action, for example, some legislative programmes such as **'Freedom, Fairness and Responsibility'** (2010) do not require any compliance from the Local Authorities; and schools, on the other hand, have the choice to opt out of certain schemes if they wish to, e.g., The Sustainable Travel Initiative, which encourages the development on site school travel plans by 2020.

According to Stevens (2010) there is also some ambiguity because although some policy encourages children's participation in communities, it ignores that older children and young people are often viewed by some people as potentially dangerous and requiring constant control (Aitken, 2001). For example (as cited by Stevens) Gaskell (2008) explored the Respect Agenda's (2006) motivations and argued that it leads to exclusionary, rather than empowering politics because addresses the need for respect to be child-driven, yet with increasing evidence that children feel as if they do not belong within local communities, the agenda does not seem to address the opposite: the need for children to be shown respect in return. Other policies mainly from the sustainability agenda advocates children's use of public space but seem ambiguous in relation to traffic schemes which victimise and deter children from being alone outdoors (Stevens, 2010). Children generally adapt in the face of the power relationship in which they reside, as stated by Van Vliet (1985) 'caught up in a net of constraints'.

3.4.3 Promotion of active travel

Promotion of active travel modes to encourage behaviour change has been advocated by all the UK policy agendas. In relation to the strategies to increase walking and cycling to school, evidence shows (DfT, 2008) that the development and implementation of a School Travel Plan can potentially lead to a school experiencing a range of wider benefits in addition to those relating to modal shift. A number of benefits reportedly experienced by schools referred to the increased safety (on the roads, on school sites, on buses) and health benefits; increased independent travel and confidence in pupils with special educational needs; improvements in pupil's behaviour; increased involvement in travel planning work, and integrating this into the curriculum; changes in educational attitudes;

opportunities for working with the local community; engaging bus operators; engaging schools and pupils from deprived areas; building positive relationships with the Local Authority; reducing road casualties; increasing punctuality and attendance and raising environmental awareness. Despite these claims, according to Stevens (2010) an analysis of 'before' and 'after' data provided by schools with Travel Plans (DfT, 2008), found that 'there does not appear to have been a significant reduction in car since the strategies were implemented' (DfT, 2008, p3).

Further evidence suggests that the promotion of walking buses alone may not be sufficient to stem a more general decline in walking to and from schools (DfT, 2008); and regarding the promotion programs for cycling, there is evidence that this kind of relatively intensive supported behavioural intervention (E.g., Bike It) reported very substantial increases in cycling among primary school pupils over the short-term (Osborne, 2006; Sustrans., 2007) but it has been found that its long-term effectiveness is strongly linked to family support; so parents and carers need also be targeted as they are the main supporters of their children's cycle activity (Nice, 2007).

The national public health campaign 'Change 4life' has also been found to have a short - term positive impact but its sustainability has been questioned as it is feared that after the initial motivation dies away, people may tend to revert to their original behaviour (Hunter 2009). In addition, the campaign credibility has also been debated. To date, the effectiveness of the campaign has not been established, but the government has been criticised for a campaign that could be flawed from the start, as it has not attached any conditions to the involvement of industry companies that are considered the leading manufacturers of fatty, sugary and snack products.

On the other hand, the chance of using funding to achieve a sustainable impact has been weak, as funding has been available to support sustainable modes, but only as incentive for Local Authorities 'wishing to introduce packages encouraging walking and cycling' for example, the UK Sustainable Development Strategy (2006). Inadequate funding allocated for campaigns has also been a motive of concern from authorities that perceived that their budget is 'already tight' and which has been a contributing factor to determine the 'short' duration of their schemes.

Other policies that affect population targets derive from assumptions that need to be better informed. For example, walking and cycling promotion generally targets pupils that live within what is considered a 'walkable' distance from school; but there are some discrepancies about what is a realistic 'walkable' distance. For example, the daily statutory

walking distances (per journey) assumed officially is between two and three miles away from home. But this is optimistic given the data available from the School Census that shows that distances that are already walked by young people are shorter. Table 3.1 (Ashcroft & Combes 2010) presents data from nine local authorities in the South West, showing ranges of distances that are potentially realistic.

Table 3.1: Showing the 'realistic' and 'stretch distance' data per journey for a primary school (Source: Ashcroft & Combes 2010).

School type	'Realistic' walking distance (this is our short term target)	% of young people walking up to the realistic distance	Stretch distance (this should be our medium term target)	% of young people walking between the realistic and stretch distances	% of young people walking beyond the stretch distance
Primary	800 metres (1/2 mile)	75.8%	1600 metres (1 mile)	18.5%	5.7%
Secondary	2000 metres (1 1/4 mile)	90.2%	3200 metres (2 miles)	6.8%	2.9%

According to this evidence, a 'realistic' distance for primary school is 800 meters (1/2 mile) and around 76% of primary and secondary pupils already walk from within this range. The 'stretch' distance (derived from School Census data and supported by the Yellow School Bus Commission recommendations) for primary schools is 1600 metres (1 mile), can be used to raise standards when schools are already reaching or exceeding the 'realistic' distance. This means that in practice, setting a realistic or reasonable walking or cycling distance has implications for a potential number of children that could be encouraged to opt for Active Travel to School. However, for primary and secondary schools, both distances, the 'realistic' and 'stretch' fall short from the 'assumed' distance by NICE (2009), which also fails to consider the impact of the pupils age, their perception of distance to school and the distance that they are willing to walk. In this respect, a report of over 2,000 children and young people between the age of seven and 14 published in recent years (2011) found that 62% of the primary school children surveyed said the main reason they did not walk to school was because it was too far away. Hence there have been many debates over the years about the system of allocating schools to children, but even without knowing the exact distances for each respondent, it has been assumed that the majority of primary schools are within a 20 minute walk (about a mile) from most pupils' homes. For secondary school pupils, even fewer are prepared to make a 20-minute journey by foot. 59% of primary school pupils are willing to walk up to 20 minutes on their journey to school, yet only 37% of secondary school pupils are willing to do the same. It

can be said that the contrast between the number of children who want to walk to school and the number who believe it is too far, despite the relative short distance, implies a distorted perception of distance that needs to be addressed by research.

3.4.4 Changing urban form

In the specific context of children's active travel to school, many of the current urban, health and transport and sustainable policies in the UK assume a fairly direct relationship between urban form of communities or transport or facilities and children's travel behaviour. The hypothesis suggests that elements such as increased block lengths, street widths, and decreased presence of sidewalks in communities have led to the decrease in walking and cycling behaviour in children, with long-term negative impacts on transportation and public health.

These kinds of approaches suggest interventions focused on improving or changing aspects of transport and urban form with the underlying philosophy that if pleasant, safer environments existed, people would be more inclined to walk and cycle and consequently improve health; and in the case of children, it has been suggested (particularly by the sustainability agenda) that the access to their locality and beyond could be facilitated significantly by developing public transport and facilities that are responsive to their needs. However, limited research exists to support the hypothesis that intervening urban form of communities will in itself increase active travel to school (McMillan 2005). For example, the provision of a 'School Safety Zone' is considered to help addressing parent's safety concerns about children walking to school independently (London Councils, 2008) but its real impact is still uncertain, as further evidence (The AA Motoring Trust, 2003) suggests that only a small minority of child road casualties (just 20%) occur on the way to or from school.

Policies may also seem 'conflictive'. For example, the Education Reform Act (1988) and The Schools White Paper (DfES, 2005b) are two kinds of national policies, which affect negatively active travel among those under 18. The Act and its judgment supporting parental choice, for example, is likely to have added to the increase in journey distance to school, and consequently reduced opportunities for walking and cycling on the school journey (NICE, 2007). The Schools White Paper (DfES, 2005b) on the other hand, summon Local Authorities to comply with the duty to support choice and flexibility of educational provision, and although incorporates the duty to promote 'safe and

sustainable' travel, the chance for children's active travel may also be reduced as a consequence.

A more progressive approach is illustrated by the 'Extended Schools framework' (DfES, 2005a), which encourages spatial concentration of site facilities at the school site to increase and promote accessibility and inclusion. According to Stevens (2010, p.74), this is *"an example of how specific services are provided in one area in order to encourage people to use a range of services without having to travel widely".* However, the impact of this and other proposals such as The Eco-Schools (DCSF, 2006) and Building Schools for the Future programme (CABE, 2006) which are focused upon the building of **new** school premises, grounds and facilities that support sustainable behaviours among pupils, parents and local communities are still unknown.

Furthermore, the assessment on the effectiveness of physical interventions is generally based on its success in increasing numbers of active trips to school (e.g. increasing the number of trips by cycle, as per the National Cycling Strategy , DETR, 1998b); but not improving its quality experience even though national policy highlights its importance. For example, with regards to the quality of the walking and cycling environment, national policy has suggested that the design of the walking environment should be 'connected', 'comfortable', 'convenient' and 'convivial' (DfT, 2000); and further guidelines had suggested that a good cycling infrastructure should have 'coherence', 'directness', 'attractiveness', 'safety' and 'comfort' (The Institution of Highways and Transportation, 2008). Such terms, however, are too general and the policy does not specify how to achieve its goals. This has highlighted the need of locals authorities for specific and detailed guidance to determine funding, planning and design for the development of the walking and cycling environment. As a response, local authorities have started formulating their own independent walking and cycling strategies and guidelines. But guidelines and good practice for the design of pedestrian and cyclist's facilities issued by local authorities are generally intended for new build projects and provide general principles and considerations starting from technical or professional assumptions about what is best for users. In some cases, such guidelines are focused particularly on improving the access of persons with mobility and visual impairment in response to The Disability Discrimination Act (1995) and The Equality Act (2010) and are aimed for use by designers and engineers but hardly mention other individual group's needs such as those of children and their parents. E.g. in the Essex County Council guidelines (2006a), children were only mentioned in the classification of cyclists as part of one of three main groups: children and inexperienced cyclists; adult commuters and on road sport cyclists and leisure cyclists and off road sports cyclists groups. In other cases, and specifically in regards to children's

travel to school, the lack of sufficient guidance to design the walking and cycling environment, has often led to the creation of a myriad of either practical locally-driven strategies or 'one-size-fits-all' type of solutions (from walking buses to cycle storage, and accessible public and school transport to safety zones with crossing points, traffic calming measures and low speed limits) each of which are assumed to be implemented across local schools around the country.

This limited evidence corroborates the Brunton et al. statement (2006) that implementation of national policy by local authorities for encouraging Active Travel to School may not reflect children's needs closely enough. For instance, it is considered that with regards to the urban environment, although progress has been achieved, a large number of people with diverse needs such as women, children, young, older and disabled people in particular, are still being excluded or put into a vulnerable position within an inhospitable built environment (CABE, 2008). Furthermore, Davis et al (1996), considers that "there have been few attempts in the UK to modify the urban environment so that children's needs are met". Adding to this debate, surface evidence shows that national principles may not be consistently met by local government initiatives. Figure 3.7 presents a synthesis of the diverse approaches at national, local and school levels being undertaken in the UK to encourage children's Active Travel to School and the gaps in policy and practice.

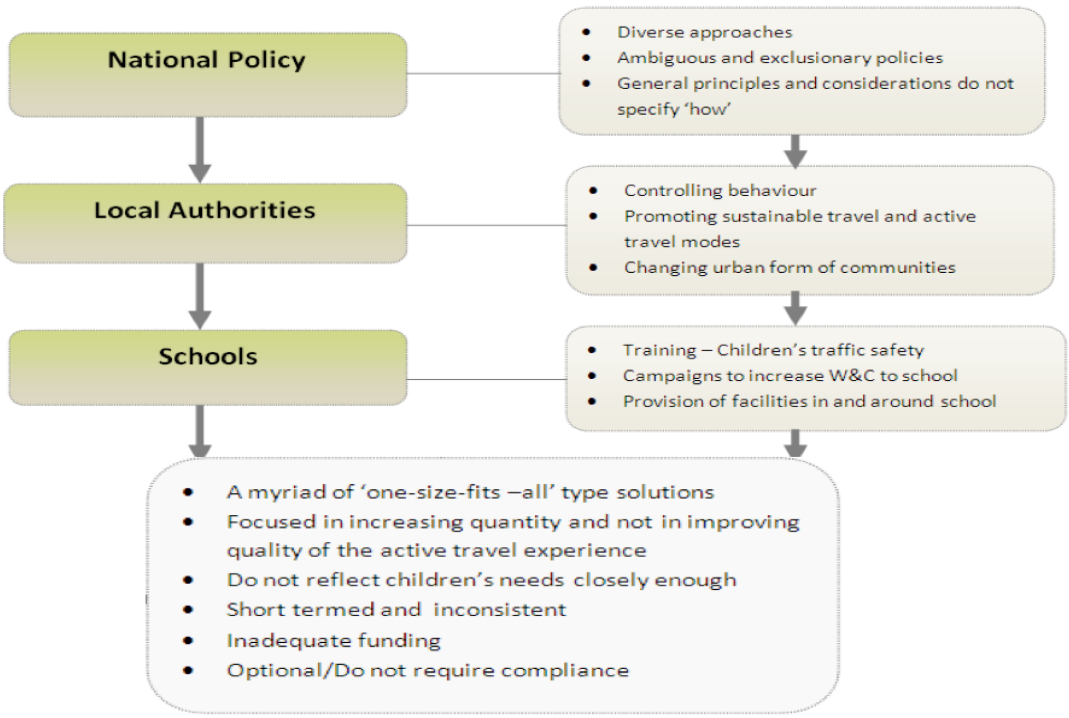


Figure 3.7: Graphic synthesis of the gap between policy and practice

3.4.5 The proponents of 'people first, car second'

At a more general context, it is argued that the extent and character of outdoor activities are greatly influenced by physical planning, resulting in a range of possibilities that situate livable urban environments on one side, and unpleasant, problematic car orientated ones on the other (Dales, 2013; Jones, 2008; Shaftoe, 2008; Cullen, 2005; Gehl, 1987; Jacobs, 1961). After World Ward II, with functionalism as planning ideology and since car use became widespread, the focus has been on functional aspects of the street as the main transport artery of cities. As a result, a dispersed and segregated urban environment has generated unrestrained car use. Furthermore, during the mid to late 20th century, urban street planning and design in the UK and worldwide have generally given vehicles priority over pedestrians. One of the reasons being, according to Jones et al. (2008) and Tolley & Turton (1995), in the case of Britain, that the planning and design of the layout of street networks was based on principles set out in the Buchanan Report, published in 1963 as *Traffic in Towns*. The report intended to become the basis of the development of policy to cope with the problem of urban traffic and recommended ways of accommodating growing volumes of vehicles through the use of a hierarchy of urban roads (for either movement or for local access) and protected 'environmental areas' (often associated with zoning) at a relative value placed on environment, accessibility and cost. However, the report principles proved unachievable as in practice they led to the erosion of traditional (mixed-use) street activities; encouraged car use and discouraged the use of more sustainable modes; placed urban functions and activities in such way that the need to travel by car has been maximized (Jones et al., 2008); and their economic cost was too high (Tolley & Turton, 1995).

Other reason for the traffic dominance and the lower priority in provision for other modes, according to Jones et al. (2008) and Dales (2013), is that professionals responsible of the planning and design of urban streets "lack the knowledge, experience, training skills and/or political support to appreciate, apply and adapt for Britain the kind of physical solutions that have proved successful in other countries" (Dales, 2013 p.1). In addition, it is considered that the conventional practice in street design is based in evidence that is out of date or not supported by robust empirical evidence on what works well and what does not (Dales, 2013; Jones, 2008; Shaftoe, 2008). Nevertheless, the result is reflected in the poor condition of the public realm and the low quality of facilities for the social, economic and transport activities.

Jones et al. (2008) state that it is within this context that a more holistic approach to urban street design has emerged from traffic planners, urban designers, developers and others

advocating for the needs of people over the needs of vehicles; encouraging the use of mores sustainable modes and also looking for the development of more human, 'friendly', 'convivial' or 'lively' cities. However, 'how' to do it better seems an ongoing challenge. For example,

- Dales (2013) recommends to focus on 'redesigning British streets' in terms of its layout and context in order to: reduce traffic speeds to 20mph; increase the width of footways; decrease the width of carriageways; and reduce the quantity of signs and railings. In addition, he proposes to design a cycle-friendly system of cycle tracks and routes similar to the ones that have successful in countries like Holland and Denmark. However, Dales acknowledges that the complex mix of activities, physical facilities and aspiration of people are all issues that need to be considered in achieving quality in the environmental improvements of streets; which often take the professionals involved, out of their comfort zones into increasingly working close with a wider range of colleagues and other agencies. Hence Dales consider this to be the most important challenge, as the structures professional's' work within make it difficult to work with others as effectively as they need to. However, Dales argues that in working in a scheme design, it will not be wise to be investing in one or a few of the issues at a time, and that the most important and difficult aspect would be finding the best balance for a street.

- In order to achieve 'cities for people', Gehl (2010) recommends to capitalize on the unique qualities of the public space; create a better balance between traffic and other city users; improve conditions for walking, staying and cycling; ensure access for all; and improve the visual quality of the street scape. However, Gehl also considers that changing a 'car' city culture into a 'city for people' is a gradual process that can take several decades, but as cities are ever changing, this is completely possible if the change is based on understanding how people use and experience cities; in what can be learnt by looking at other successful cities and also in following an strategy on three levels: immediately, inside a short span of years and at a long-term (Gehl 2004).

- Hamilton-Baillie (2008, 2000) questioned some of the underlying principles in traffic and highway engineering (in particular the segregation of pedestrians, cyclists and motorists) and, after gaining an understanding of the behavioral psychology of integrating traffic and pedestrian activity in a 'shared space' (an original concept by Monderman, n.d.), he concluded that getting rid of clutter, traffic signs, guard rails, road markings, and high kerbs in a street results in greater safety and slower traffic speeds

as it increases driver's awareness of people and the surroundings. However, a 'shared space' is a concept that is not welcomed by everyone, especially by partially sighted people that reports feeling insecure without their traditional cues (kerbs, tactile paving surfaces and controlled crossings) in shared spaces (Guide Dogs, 2006); therefore, there is a potential conflict that highlights the importance of consulting widely during the design stage, as stressed by Monderman (2007).

- Shaftoe (2008) advocates for more effective 'convivial' urban places in terms of 'rich', 'vibrant', 'joyous', 'legible' and 'mixed use' environments designed and developed with a human approach and scale that encourages 'freedom' to walk about; a 'positive social interaction'; 'cater for all sections of the community' and 'consult with them' (p.7). In addition, Shaftoe considers that successful spaces share some common physical, geographical, managerial, psychological and sensual elements and that "the way in which these qualities combine to please the human consciousness is not an exact science" (p.141), because although there are clearly some 'objective' (physical) considerations (such as even paved surfaces, seating, adequate lighting, amenable microclimate and safety from motor traffic) beyond these are many 'subjective' (perceptual) effects that "the design, layout and animation of a place may have on the degree of personal comfort and delight" (p.141).

- Jones et al. (2008, 2011), recommend creating more people-friendly urban streets through 'Link and Place' street planning and design. A street is used as a 'Link' to facilitate movement fast and conveniently, whilst as a 'Place' a street is 'a destination in its own right' where people spends time and participates in activities. Both functions vary in their balance according to the importance of the part of street as a 'Place' and its predominant type of land use; hence, as the 'Place' function becomes more important, the 'Link' function will be reduced when deciding on priorities and an appropriate street design. For example, Town and city centers are considered eminently places, and therefore, the most walkable part of the network, whilst relief/ring roads are predominantly about motor traffic movement and therefore, hardly at all about place. The principles of "Link and Place' balances the traffic movement function of streets against the other social and economic functions that conventional planning and design (e.g. the Buchanan Report previously mentioned) sought to separate by defining roads a being for either movement or for local access. According to Jones et al. (2008, 2011), the philosophical concept behind the 'Link and Place' also encourages a collaborative approach between the different professions involved in street planning and design; which could result in a 'better' cross-departmental and cross-agency communication within local authorities.

Particularly in the UK, a range of reports and guidelines with similar principles has been produced by diverse organisations during the last few years, being one of the most significant the publication by the Department for Transport and the Department for Communities and Local Government *Manual for Streets* (DfT and CLG, 2007), which aim to increase the quality of life of streets through 'better' design and the application of the principles of inclusive design in order to create more people-oriented streets. On one hand, a 'better' design comprehends a series of principles which include but are not limited to: 'applying a user hierarchy that puts pedestrian at the top'; 'emphasizing a collaborative approach to the delivery of street'; 'recognizing the importance of the community function of streets as spaces for social interaction'; 'supporting pedestrians and cyclists needs'; 'creating networks of streets that provide permeability and connectivity'; 'developing street character types on a location specific bases'; minimizing signs and street furniture; and 'designing to keep vehicle speed at our below 20mph in streets and places with significant pedestrian affluence'. On the other hand, principles of inclusive design include: placing people at the heart of the design process acknowledging their diversity and difference; offering choice where a single solution cannot accommodate all the needs of the users; providing flexibility in use and providing buildings and environments that are convenient and enjoyable to use for as many people as possible (CABE 2006a, as cited in *Manual for Streets*).

With regards to street users' needs, in order to encourage walking and cycling, *Manual for Streets* suggest that pedestrians and cyclists should generally be accommodated on streets rather than routes segregated from motor traffic and recommend that street networks should, in general be connected or 'permeable' and to make places easier to navigate through. However, this approach has been criticized because by encouraging permeability of street networks, it undermines its declared intention to reduce the domination of streets by motor traffic, as it is believed that permeability would multiply opportunities for 'rat-running' and increase the capacity of a road network to carry traffic and consequently also increase CO2 emissions (Melia 2008). As a solution, it has been suggested that the guidance should limit permeability for motor vehicles and provide full permeability only for walking and cycling (Sustrans 2006).

In addition, the *Manual for Streets* promotes the design of 'walkable neighbourhoods' that would satisfy a wide range of requirements from pedestrians "of all ages, sexes and abilities"(p.63). According to the manual, such 'walkable neighbourhoods' should have, for example, an 'appropriate scale', 'legible design'; a range of facilities located within a

‘walking distance’ of about 800 m or 10 minutes; a pedestrian network connected with appropriate surface level crossings wherever possible; rest points and seating on pedestrian routes every 100m; and, smooth and uncluttered pedestrian footways with a minimum width of 2 m and more if they were located in streets around schools or shops. With regards to the cycling infrastructure, the manual recommendations include to provide direct, barrier-free routes with smooth surfaces; provide cycle lanes and cycle tracks wherever possible; and to design junctions to promote slow motor-vehicle speeds. And with regards to public transport, the manual focuses on bus-based public transport as the most common mode in residential areas and makes recommendations for the siting of bus stops at convenient and accessible places for pedestrians of diverse abilities. Furthermore, the manual refers to the convenience of shared surface streets and Home Zones to encourage low vehicle speeds; balance the needs of pedestrian and drivers; the promotion of social interaction; and the importance of consultation with the local community to ensure that the physical interventions meet the needs of all the users.

Although the *Manual for streets* adopted a more holistic, people-centred approach to urban street planning and design, it did not addressed in any detail the application of the principles beyond residential streets or busier urban routes in need of more contextually sensitive designs (CIHT 2010, Sustrans 2006). Therefore, such issues have been addressed in the *Manual for Streets 2 – wider applications of the principles*, designed as a companion guide to the original Manual for Streets rather than to supersede it (CIHT 2010). Manual for Streets 2, examines through case studies some common street types in different contexts to demonstrate a balance between context and user needs in terms of ‘Movement function’ (Link) and ‘Place function’ under the same principles of Jones (2008) discussed previously. Nevertheless, Manual for Streets 2 proposes five practical strategies to improve existing streets by applying the principles of Manual for Streets: tidy up; declutter; relocate/merge functions; re-think traffic management options; and re-create the street.

3.5 Summary

This chapter presented a series of ongoing government policies, strategies and schemes from education, health, sustainability, transport planning, social inclusion and road safety, in which the journey to school has been framed in the UK. A critical review of this complex context found a range of diverse, exclusionist, ambiguous, conflictive and/or inconsistent approaches in policy, which might explain the reason why, after many years of nationwide strategies, the shift towards active travel modes is still negligible and car use has not declined (DfT, 2008).

The traditional approach to children in urban transport and environmental planning has been to focus on behaviour control and modification which has resulted in a set of policies that serves the interest of adults, and marginalises the interests of children (Davis et al, 1996) and consequently leads to social exclusion. The approaches taken by road safety strategies are an example of it. Women have also suffered from social exclusion, as transport planners have ignored their needs (Tolley et al., 1995).

A shift in approach, that can be attributed to the impact of the United Nations Convention of the Rights of the Child (CRC 1989), shows that planners and policy-makers are increasingly becoming sensitised about the impact of their urban design decisions on children lives. This has resulted in the involvement of children in the planning, design, monitoring and management of the physical environment. Although child-centred approaches have been encouraged by national strategies, there have been issues with implementation at local levels due to difficult guidelines, practical issues, lack of compliance etc.

Other types of approach have focused on the promotion of active travel modes to encourage behaviour change. However, impact and effectiveness are mostly just short - term, and funding allocated for campaigns has also been inadequate. In addition, some common policies that affect population targets derive from assumptions that need to be better informed, in order to set realistic or reasonable targets in practice.

With regards to urban form, the common approach has been to assume that by improving or changing aspects of transport and urban form of communities, people would be more inclined to walk and cycle. However, limited research exists to support the hypothesis that intervening in the urban form of communities will increase active travel to school (McMillan, 2005).

The evaluation of effectiveness of physical interventions is also an issue, because it is generally based on success in increasing the amount of trips to school, but not in improving the quality experience. In this sense, national policy seems too general and the lack of specific guidance has pushed local authorities to formulate their own plans.

This has resulted in technical or professional assumptions about what is best for users and in the creation of a myriad of either practically locally driven strategies or ‘one-size-fits-all’ types of solutions that are assumed to be of widespread implementation. Therefore, it can be affirmed that the implementation of national policy by local authorities for encouraging active travel to school does not reflect children’s needs closely enough.

Although recently, a holistic approach to urban street design has emerged from traffic planners, urban designers, developers and other key proponents of putting people first and achieving a balance of the functions of streets as ‘Link and Place’, the ‘how’ to do it better seems still an ongoing challenge, as the suggestions appear numerous and varied. Nevertheless, it is recognized that a) there is a complex mix of activities, physical facilities and people’s needs and aspirations that need to be considered in achieving quality in the environmental improvements of streets; b) this requires time, planning, strategy and the collaborative approach between the different professions involved on the planning and design of the street and c) it requires the acknowledgment of the importance of the involvement of users during the design stage.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

The purpose of this chapter is to describe and argue for the philosophical underpinning of this PhD research. To this end, the key assumptions made by this research with respect to the research paradigm are outlined in this chapter. Following this, the qualitative approach and strategy is discussed in detail. Subsequently, the methods of data collection are presented and the data analysis process is described. The issues encountered pertaining to reliability and validity in qualitative research are also discussed, and finally, the research limitations are recognised.

4.2 The research paradigm

According to Maxwell (2005), one of the critical decisions that an author needs to make in designing a study is the paradigm (or paradigms) within which the author will situate their work. The term *paradigm* has been defined by Denzin and Lincoln (2005, p 183) as 'a basic set of beliefs that guide action'; and refers to a set of very general philosophical assumptions about the nature of the world and how we can understand it (Kuhn, 1987).

Gill and Johnson (2002) stipulate that there is no one best approach to research but rather a compromise between the options based on the philosophical understanding or basic beliefs about the world. Knowledge is a complex phenomenon influenced and developed by various contextual variables. In this respect, a research philosophy represents a researcher's perception of the way knowledge is constructed (Saunders et al., 2003). At the most abstract and general level, there are two main research approaches that are placed at the two ends of a continuum and which provide a distinctive view on the way knowledge is developed: *objectivism* and *subjectivism.* At a more specific level, Vischer (2008) places all user-centred theories of the built environment on the continuum situating environmental determinism (which assumes that physical environment causes user behaviour) at one end of the continuum and situating social constructivism (which assumes that the social context determines urban behaviour) at the opposite end of the continuum. Within these philosophical instances can be identified: Epistemology, Ontology, and Axiology.

Epistemology shows 'how' a *researcher* acquires and accepts knowledge about the (social) reality. Situated at one end of the continuum, *Positivism* is an epistemological

position that advocates the application of methods of natural science to the study of (social) reality and beyond, and it assumes that the “truth” is out there to be discovered by the researcher (Sutrisna, 2009) and its properties should be measured through *objective* measures, where the observer must be independent from what is being observed, which originates from the thinking of Comte (1853). On the opposite end of the continuum, *Interpretivism* is an epistemological position that separates the objects of natural science from the (social) actors; therefore; the researcher somehow constructs their own “truth” in viewing the world (Gray, 2004).

Ontology seeks to identify the nature of (social) reality; and explains ‘what’ knowledge is, and assumptions about reality. Realism, at one end of the continuum, is an ontological position that asserts social phenomena and their meanings have an existence that is independent from the (social) actors. Constructivism on the other end of the continuum, is an alternative ontological position that asserts that (social) phenomena and their meanings are continually being accomplished by the (social) actors not only produced through interaction but through a constant state of revision (Sutrisna, 2009).

Axiology reveals the assumptions about the value system and indicates the nature of the values the researcher places on the study. At the positivist end of the continuum and determined by objective criteria is termed *value free research*, whilst at the interpretivist end of the continuum and determined by subjective criteria is *value laden research* (Denzin and Lincoln, 2005).

The epistemological, ontological and axiological assumptions about the nature of the world complement the formulation of a research philosophy, thereby influencing the consequent selection of appropriate research methodology and therefore the way in which the empirical data is collected, analysed, interpreted and presented. As Easterby-Smith et al (2002) argue, failure to think through philosophical issues, while not necessarily fatal, can seriously affect the quality of research, which is central to the notion of research design. Furthermore, Kulatunga (et al, 2007) also note that consideration of the research philosophy relevant to a study helps a researcher in choosing the appropriate approach and that not only the philosophical stance, but also the research problem under investigation and its underling circumstances influence the selection of this approach.

4.3 Philosophical underpinning

This PhD research attempted to elicit the perceptions and perspectives of people about their interaction within an environment regarding active travel to school and aimed to answer 'what' it is affecting them in that interaction, and 'how' this could be possibly changed in an ideal scenario; the author considers that it is about people in its own right, with their own views and in their own context. Therefore, in terms of epistemology and ontology, this PhD research underpinned its research philosophy in the Interpretivist and Social-Constructivist paradigms, from the view that reality is not objective and exterior, but is socially constructed and given meaning by people (Easterby-Smith et al., 2002) who are conscious, purposive actors with ideas about their world and attach meaning to what is going on around them (Robson, 2002). In addition, in terms of axiology, the research assumes a subjective criteria which is value laden as the author believes that knowledge is a complex phenomenon, which cannot be generalised in a value-free and detached manner. The inductive nature of this research, therefore, required the researcher to not-presuppose and to keep an open mind for any possible results whilst proposing a set of further steps for data collection in attempt to answer the phenomena in question. Furthermore, the researcher constructed her own "truth" of the social reality focusing on the exploration of the topics by the application of critical interpretations and gradually establishing research conclusions (Remenyi et al., 1998); instead of formulating a hypothesis to test at the beginning of the research.

Following the naturally emerging approach from the Interpretivist and Social-Constructivist paradigm, this PhD research adopts a qualitative approach, based on the assumption that there is no singular objective reality and hence the observed reality will be related to the researcher's interaction with the phenomenon. Qualitative research has broadly been defined as *"any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification"* (Strauss and Corbin, 1990, p.17), and on the opposite, uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such *as "real world setting [where] the researcher does not attempt to manipulate the phenomenon of interest"* (Patton 2001, p.39). According to Clifton and Handy (2001), during the last 60 years, the traditional approach in travel behaviour research has relied on quantitative approaches that have contributed to the development of increasingly sophisticated models to forecast travel behaviour and predict changes in the transportation system. However, this quantitative approach has failed to understand the complexities and constrains of the choices that individuals, families and households make about their daily travel (Clifton and Handy, 2001). A *qualitative* approach such as the one adopted by this research, therefore, has been considered "a powerful tool"

to explore complexities and a “vehicle” for answering questions about *what* is happening in a particular setting or *how* realities of everyday life are accomplished” (Clifton and Handy, 2001; Seale, 1999).

Figure 4.1 below shows the two main research philosophies discussed above named as Positivism and Interpretivism and its three assumptions: Ontology, Epistemology and Axiology. In one position stands Positivism, which can also be referred to *objectivist, scientific, and experimentalist*. In the other position and highlighted in the orange colour stands Interpretivism followed by this PhD research and which can also be referred to as *subjectivist,* socially constructed, is not pre determined, is linked to *constructivism*, and also is *inductive and qualitative* in nature.

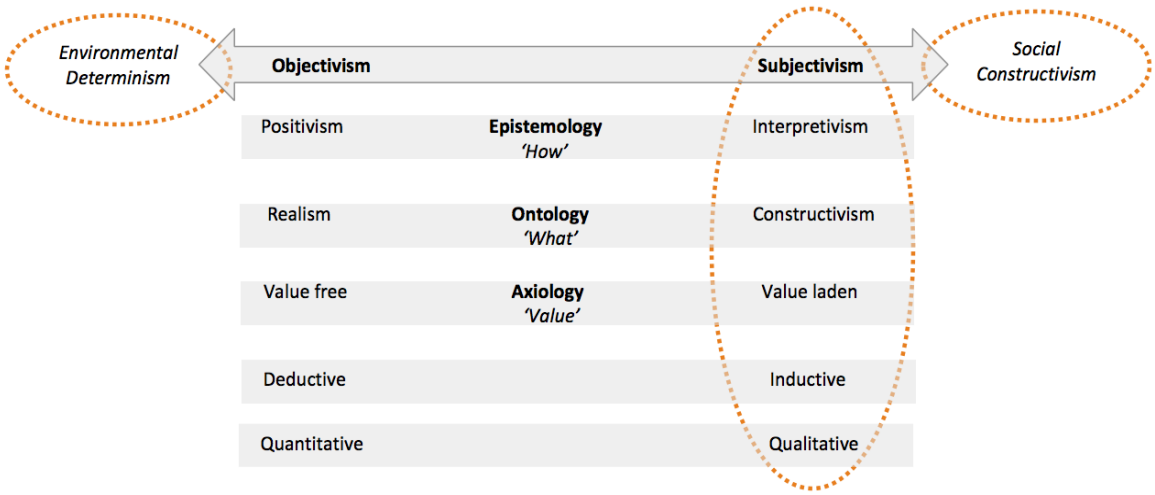


Figure 4.1 The research philosophical underpinning (Source: Material derived from Saunders et al. 2003, and Vischer 2008)

4.4 Research Strategy

The general approach taken in an enquiry is commonly referred to as the Research Strategy and the most common classification which is widely used distinguishes between three main strategy categories; Survey, Experiment and Case Study; however, some other research strategies such as ethnographic study, Phenomenological research and Grounded Theory are summarised by other authors (Grey, 2004; Robson 2002). Although the strategies can be linked (according to their characteristics) to the two extremes of deductive and inductive research approaches (under the Positivist and Interpretivist philosophical positions), a research problem may require an approach which does not fall neatly into one of the three main categories and therefore, research often contain both positivistic and interpretivistic approaches (Robson, 1993).

The three traditional strategies represent different ways of collecting and analysing empirical evidence. Each has its particular strengths and weaknesses. Furthermore, it has been suggested that there is a hierarchical relationship between the three strategies, related to the purpose of the research, and that *Survey* is appropriate for *descriptive* work (portrays an accurate profile of persons, events or situations); *Case Study* is appropriate for *exploratory* work (finds out what is happening, and seek new insights); and *Experiment* is appropriate for *explanatory* studies (seeks an explanation of a situation or problem, usually in the form of causal relationships). However, Robson (1993) considers it important to highlight that the three traditional research strategies do not provide a logical partitioning covering all possible forms of enquiry and in order to choose a research strategy, further aspects than the purpose of the enquiry such as the timeframe, the extent of control over behavioural events and the intended focus on contemporary events in a real life-context and research question(s) need to be considered, as summarised in Figure 4.2.

Relevant situations for different research strategies

Strategy	*Form of research question*	*Requires control of behavioral events?*	*Focuses on contemporary events?*
Experiment	How, why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival analysis	Who, what, where, how many, how much?	No	Yes/no
History	How, why?	No	No
Case study	How, why?	No	Yes

Figure 4.2: Different research strategies: Design and Methods (Source: Yin, 2003)

In terms of timeframe, there are two time horizons recognised in the literature – longitudinal and cross-sectional. A longitudinal research process examines particular phenomenon over a given period of time, whereas cross-sectional is focused on a particular moment. This PhD research adopted a cross-sectional timeframe, as it was appropriate to the research aim and the research resources. Firstly, the researcher was given a limited period of time which constrained her ability to conduct a longitudinal examination; and secondly, the research was not intended to analyse the variance of the research variables over a period of time but intended to focus on exploring and describing a contemporary event, at a given point in time such as to capture what are the current views and the long-term perspectives of parents and children about their interaction within an environment regarding active travel to school.

However, parents nor children cannot be considered a homogeneous group, as they have different characteristics and dispositions; experience particular social circumstances and live in different communities (Lewis et al., 2000) and although children have been defined

as every person below the age of eighteen years old, children's ability to move around independently varies according to their characteristics (age, gender, ethnicity, etc.) and is largely influenced by their parent's decisions. Parents' characteristics (marital status, age, gender, ethnicity, etc.) may also influence that decision. For example, although children in the UK may start at primary school at any age between four and six years of age, according to previous research (KIDSCAPE 1990) is not until the age of 9 that parents give children independence to move around (e.g. cross local roads), and the age of 10 to 12 years is considered as time when independent mobility changes and children that are allowed to move independently have the opportunity to engage in a greater volume of physical ability (Hillman et al., 1990). However, other researchers have also established that this period (11 to 12 years) is characterised by a downward shift in physical activity and an increase in sedentary behaviour making an intervention in this period crucial in order to reverse these patterns (Broadersen et al., 2007). After the age of 11, children usually transfer to secondary schools.

Therefore, authors (Page et al., 2010; Brunton et al., 2006) recommend investigating both child and parental perceptions of the environment as these may exert independent and/or interactive effects. Consequently, this PhD research intended to elicit both parents and children's views and perspectives independently. For the purpose of this research, the term 'parent' includes any person that provides permanent care of the child, whether or not they are related. In addition, this research intended to engage children between the ages of 7 to 16 years old corresponding to the ages when children are attending educative establishments regularly. In this instance, it was required that the chosen research strategy would allow to get all the information and insight required to appreciate the views and long-term perspectives of a wide range of people: children and parents in the context of transport to school. In addition, it was required by the strategy to understand how these views vary across different groups and genders. Finally, the strategy was required to allow constructing a holistic view of children and parents perspectives.

As this research is interested in answering questions of the 'what' 'who', 'how' and 'where' types, it does not require control over behavioural events and focuses on contemporary events, the strategy to adopt was tentatively *Survey.* However, as a research strategy, it stands in the positivist, objectivist, and deductive side of the research philosophies and commits to a breadth of study, a focus on the snapshot at a given point in time and a dependence on empirical data (Denscombe, 2007). Although adopted as a strategy enables the use of a whole range of methods within the strategy, *Survey* refers to the study of a population through observation of a sample of its members, and it does not observe social interactions between persons, institutions, or environments in a given

population, but only characteristics of the individual members involved (Groves et al., 2004). Furthermore, it covers quantitative studies that primarily aim at describing numerical distributions of variables in the population (Denscombe, 2007).

However, there is a qualitative way of defining and investigating variation in populations. The *Qualitative Survey* is considered by Wester (2000) as an application of Grounded Theory with Theoretical Sampling and constant comparison, involving several empirical cycles (iteration of analysis and data collection) which studies diversity (not distribution) in a population and it does not aim at establishing frequencies, means or other parameters but at determining the diversity of some topic of interest within a given population (Jansen, 2010). However, although many authors have proposed classifications of qualitative research; none of them have included *qualitative survey* as an explicit research category and just one author (Wester, 1995, 2000 as stated by Jansen 2010) has used it to specify one of three main types of qualitative research beside *ethnography* and *case study,* "hence its logic as a research strategy is still confusing and almost non-existent in textbooks or general social research methodology" (p.3) Jansen (2010) therefore argues that *qualitative survey* has quite often been reported under the labels of Grounded Theory or unspecified qualitative research, which has been criticised for its weak methodological justification. Jansen (2010) proposes positioning the qualitative survey in the field of qualitative research as an explicit category with that proposed by Creswell (1998) which distinguishes five types of qualitative research that represent long-lasting traditions in social science: *biography, phenomenology, grounded theory, ethnography and case study* as can be seen below in Figure 4.3.

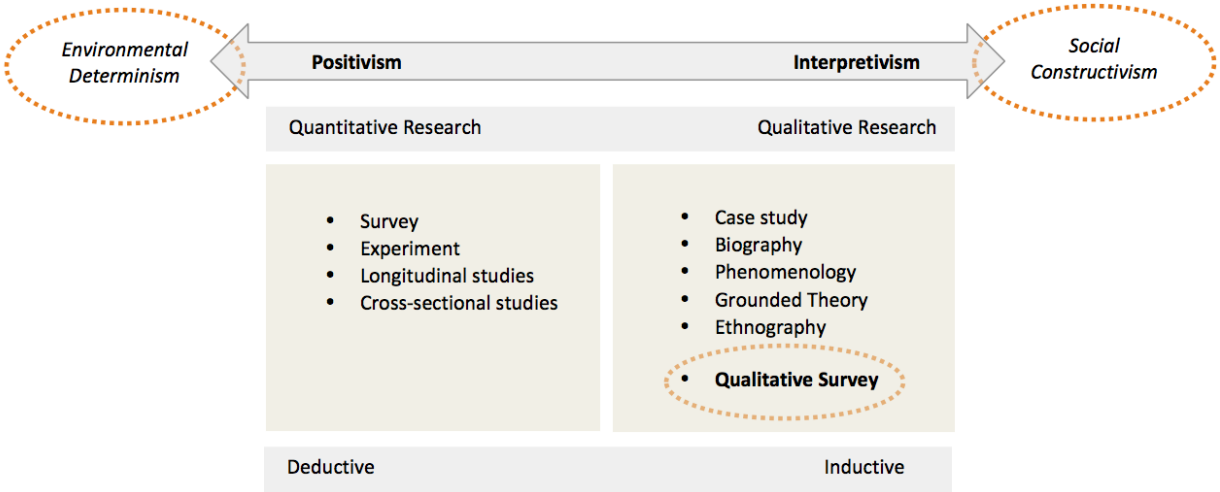


Figure 4.3: Qualitative Survey position in the field of qualitative research as an explicit category with the typology proposed by Creswell (1998). (Source: Material derived from Jansen, 2010 and Creswell, 1998)

Following Jansen's proposal to position the qualitative survey in relation to the main traditions of qualitative research, this PhD research adopts qualitative survey as the research strategy, for the following reasons: a) qualitative survey is a type of research that allows 'exploring' the diversity of 'certain behaviours or cognitions within a given population'; b) such 'exploring' is achieved through the comparison of analysed and 'categorised' data elicited from a limited number of members selected from that population; and c) The categories are justified by quotations from the participants of the research (Jansen, 2010). Therefore, qualitative survey allows the author of this PhD a) to get the depth and breadth of information and insight required b) to include and appreciate the diverse views and perspectives of the diverse participants involved; and c) to give participants a voice.

The author of this PhD research has rejected other possible qualitative strategies such as ethnography, Case Study, Empirical Phenomenology, and Grounded Theory for the following reasons:

Ethnography seems the opposite of the *qualitative survey* because the ethnographer searches for steady patterns of interactions in a certain community, not for diversity among individual members (Jansen, 2010).

Case Study most often relates to cases as organisations or institutional interactional practices, not populations and, in addition, requires an in depth analysis of each single case or a small number of cases, with multiple sources of information and repeated observations (Creswell, 1998; Yin, 2003).

Empirical Phenomenology does not primarily aim at coverage of the diversity, but rather at conceptualising the common essence in individual persons experience with a topic of study such as divorce, drug dependency, etc (Baker et al., 1992).

Grounded Theory, which is a sophisticated, lengthy, intensive research model for the generation of explanatory theory and requires iterating multi-source and multisite data collection and analysis (Charmaz, 2007) has not been considered because this PhD research is not about the study of social structures and processes but about the study of diversity in a population. In addition, and due to pragmatic reasons such as the time and resources available for this PhD research, this choice was not considered viable.

4.4.1 Qualitative Survey Strategy

A qualitative survey strategy as defined by Jansen (2010, p.3) is “the study of diversity (not distribution) in a population” and differs from the statistical survey strategy in that the latter aims at estimating/evaluating the frequencies of characteristics of units in a population. Jansen’s (2010) definition includes “all studies of diversity in a population without restrictions as to the number of empirical cycles or the way of generating codes: data-driven, prior-research-driven or theory-driven”.

As like any other research strategy, the survey has different phases and steps and the first one involves the specification of the central research questions that need to be addressed and in achieving ‘a sense of specificity and focus’ (Gray, 2004); the second step is sampling, the third step is data collection and the fourth step is analysis. As can be appreciated in Jansen’s (2010) qualitative comparison survey (Figure 4.4), both qualitative and statistical survey may start from identical aims and even from identical research questions, but the first difference appears at the key stage of sampling, that for the purpose of this PhD research is discussed in section 4.7. The second difference appears at the analysis level, which is addressed in section 4.8.

Steps	Qualitative Survey	Statistical Survey
1. Defining knowledge aims		
Topic (material object) Aspect (formal object) Empirical domain Unit of data collection Knowledge function	any topic diversity any population (collection) members of population primarily description	any topic frequency distribution any population (collection) members of population primarily description
2. Sampling		
Method of selection Criterion for size (N)	diversity; by purpose saturation, coverage of population diversity	probability; by chance precision of estimate (CI)
3. Data collection		
Measurement level Method of collection	any any	any any
4. Analysis	diversity analysis	distribution analysis
1st-level analysis Unidimensional description	coding data (downward and upward) in objects, dimensions and categories	counting frequencies descriptive statistics estimating parameters
2nd-level analysis Multidimensional description	*case oriented:* combinatory synthesis of diversity: property-space analysis, typology construction *concept oriented:* holistic synthesis by core concept	*unit oriented:* cluster analysis, homogeneity analysis *variable oriented:* correlation, factor-analysis, index construction, scaling
3rd-level analysis Explanation	deterministic explanation: combinatory analysis QCA, pattern analysis	probabilistic explanation: discriminative analysis, regression, LISREL

Figure 4.4: Differences between Qualitative and Quantitative Survey (Source: Jansen, 2010)

4.5 The methods of data collection

'Data' are the records of what the researcher is studying and consists of observations; texts of interviews, photographs and such types of materials available for analysis (Richards, 2009); and the methods of data collection are the particular procedures for getting the data. According to Jansen (2010) both statistical and qualitative surveys may collect data by questioning people, which is the most common type of survey but also by observing 'interactions' or 'artifacts' in any kind of situation.

However, Jansen (2010) argues that in relation to the Qualitative Survey, the data collection methods or the type of data to be collected are not limited by the strategy in itself, but in the qualitative approach, the correct choice of appropriate methods that allows including participant's perspectives and the researcher's reflections on her research as part of the whole process is essential (Flick, 2002).

As the questions posed to the participants of this research at the level of data collection needed to generate the data for the research questions (Maxwell, 2005), for the purpose of this PhD research, the questions to be answered in accordance to the objectives of this research were guided by the synthesis of frameworks of factors and variables that affect children's Active Travel to School resulting from the literature review from chapter two of this thesis.

As can be seen in Figure 4.5, at individual and family level, questions were seeking information such as the personal characteristics of parents, children and households (age, gender, ethnicity and transport resources) and also were looking into individual views and preferences regarding Active Travel to School. At the community and wider societal levels, questions were addressing the current physical and social factors that affect the school travel choice; the neighbourhood contexts in which schools are located (the route and its surroundings); and the decision-making processes by which children and parents get involved.

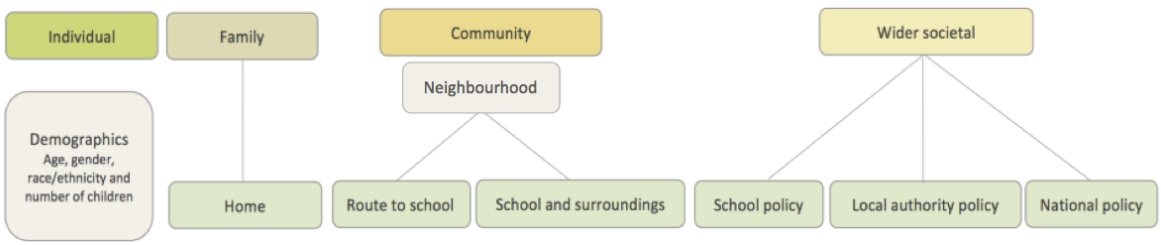


Figure 4.5: Changes at Individual, Family, Community and Wider Societal Levels

In addition, in order to address questions regarding the perspectives of Active Travel to school in terms of change/improvement, a fundamental shift was proposed by this research: instead of following the current tendencies that value the car in detriment of people's safe and independent travel, a different 'scenario' was put in consideration to children and parents. In this scenario families would be supported with decisions at national, local and family levels that would affect the way their communities, schools and families would be functioning in a future. Children and parents were strongly encouraged to propose any changes they may want at those levels in order to support them to opt for Active Travel Modes. This scenario allowed also parents and children to negotiate equally their decision about their Active Travel to School mode choice.

However, Lewis and Lindsay (2000) argue that while the choice of method will always be determined by the research question, it is essential to take account of the age, social class, gender and ethnicity of children, so, these key variables are considered when designing and conducting projects. For example, previous research (Christensen and O'Brien, 2003) highlighted that researchers need to be imaginative and sensitive in their approach to research with children to ensure that their perspectives are elicited by careful data collection and analysis. Further evidence pointed out the need to modify, adapt and innovate traditional techniques of research (such as the questionnaire) traditionally used with adults to use with children and to explore more creative and varied methods to avoid an over-reliance on one type of data-collection method (Morrow, 2010). Therefore, to collect relevant data from parents and children, this PhD research used questionnaires that were facilitated via one-to-one semi-structured interviews and also via focus group sessions that incorporated further participatory methods.

4.5.1 Semi-Structured Interviews

Interviews can provide the same rich, situational response as focus groups. Because informants are interviewed individually, the confidentiality issues and normative pressures that often plague focus groups are not as problematic. The interview format provides a more intimate setting for discussion of sensitive issues or very personal matters, and more detailed information about the individual or household circumstance can be relayed. Interviews allow for flexibility in the type of information being collected. Researchers can mix attitudes, options, and preferences with information that is typically quantified from a questionnaire. Guides and filters can be used to tailor subsequent questions based on previous responses. Finally because the respondent is answering questions in the presence of an interviewer, there is an opportunity for clarification, explanation, and

elaboration of questions and responses (Clifton and Handy, 2001). In this PhD research, the author acted as the interviewer and used a voice recorder to record the responses. Every interview varied in time length, as the time accuracy was not considered as important because the author was focused on extracting valuable people's impressions rather than pursuing a methodological constancy. The interviews had the format of a casual conversation where the interviewer used semi-structured and open-ended questions but the interviewee had the opportunity to give their opinions freely and provide further comments.

4.5.2 Focus Groups

Focus groups have been used in some studies to understand more about the factors that influence decision-making. In a focus group setting, a small number of people, usually between six and twelve, are recruited based on a specific set of criteria. Although the small sample size does not allow for statistical testing or broad generalisations, it does allow for in-depth exploration of selected issues (Clifton and Handy, 2001). The participants exchange their ideas, experiences, and attitudes about a particular subject in a guided discussion facilitated by a moderator. These discussions are usually audio and/or video recorded to ensure an accurate record of the interactions and enable identification of responses. For the purpose of this research, focus group and guides and protocols were developed consistent with recommended focus group methodology for children and parents differently (Krueger, 1994). Although focus groups are considered a valuable method for eliciting views and experiences of children (Morgan et al., 2012) further participatory methods were researched and considered in order to enhance children's participation.

4.6 Participatory methods and techniques

According to Cahill (2007) and Stevens (2010), participatory methods stimulate shared learning, knowledge and meanings through flexible and collaborative techniques that enable participants to use their words and abilities by the use of a range of exercises. In the context of children, participatory approaches commonly use visualisation methods (Coats, 2002) such as diagramming, drawing, mapping, diary writing, paintings, poetry, charts, etc. and they have the advantage that they provide children with a means of expressing their individual preferences, dislikes, relationships and ideas for their own environment and this provides valuable insights for the researcher (Hart, 1997).

Drawing, for example, is also considered a 'liberating method' that enables children to reveal to themselves and others about their knowledge (Hart, 1997). Being a visual and task-based method, it tackles the issues of unequal power relationships between the adult researcher and the child participant; and it eases the pressure that the child may feel to respond relatively quickly in the 'correct' manner (Punch, 2002). In addition, drawing can be used effectively as a stimulus for further discussion about aspects that might not so easily emerge in words (in an interview, for example) and children seem to enjoy the visual and task-based method because it presents a different and interesting alternative to their usual schoolwork. The disadvantages of using drawing exercises in a group is the large amount of data generated at the same time, plus at some moments during the sessions, it may not be feasible to discuss arising issues in further detail. Furthermore, children may employ stereotyped images that relate to what they have learned to draw or sometimes do not consider drawing a serious opportunity to express their ideas or may consider that they have not artistic talent and feel intimidated when asked to draw (Hart, 1997).

Participative mapping on the other hand, is an interactive visual method that draws on local people's knowledge, enabling participants to create visual and non-visual data to explore social problems, opportunities and questions (Emmel 2008; Chambers 2006; Armsten et al., 2005). Participants work together to create a visual representation of a place using the tools and materials at their disposal. At the same time, while creating their map, the group may deliberate over how to best represent the place in question, share their observations as they go along, and tell personal stories and anecdotes. This can lead to rich and sometimes surprising data for social research. The advantages of participatory mapping are that the visual, creative prompts in mapping that encourage participant dialogue. The basic, 'self-created' mapping technique provides a means for participants to express their ideas and thoughts in an easily understandable and enjoyable visual format.

For the purpose of this PhD research, a range of participative and interactive methods, which included drawing and mapping, were designed in order to elicit information from children such as their current travel mode and the barriers and enablers to active travel to school. Some of them were play-based, used as initial 'warm-up' or 'in between tasks' exercises to keep the children's motivation going. Others used props to propitiate discussion between children and/or clarify information. In addition, the range of methods was designed to be flexible depending on the age range, number of children in the group and place and time available for the activity. Using such methods within the 'activity groups' where a number of children can complete a task simultaneously, allowed obtaining information more quickly and for a greater number of children than by individual interviews (Boyden and Ennew, 1997). An overview of the questions and methods used with children

and parents can be found in appendix B of this thesis. The range of methods is now described in detail.

4.6.1 Travel mode - "Travel stations game"

To establish the travel mode, the 'travel stations game' (seen in Figure 4.6) was developed. This is a warm-up game based on the four corners in a room being a different transport mode and the children responding to questions and running to the corner which gave the appropriate answer (for example how do you travel to school and if a child was driven to school they would run to the "car" corner). Through the travel station game, the current travel mode to school used by children was elicited. The travel stations game was used with younger children aged 7-11.

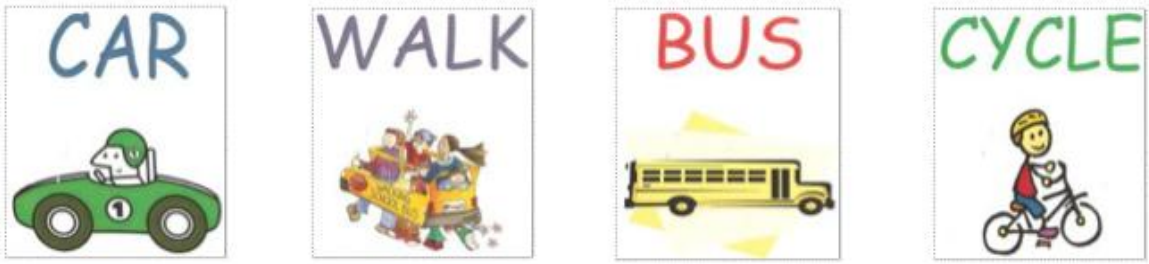


Figure 4.6: Images of the Travel Stations Game

4.6.2 "My journey to school" – now and in the future

In this drawing session, that varied according to children's group ages, children were provided with A3 sized paper and coloured pencils and asked to draw a map of their route to school and the transport mode they used now and in a preferred future. Every child then talked about their drawings with prompts from the facilitators (for example where do you live? Who walks to school? Why? If you get to school by car, would you like to walk or cycle?). The drawings produced in the sessions were kept as part of the research with the permission of children (Figure 4.7). The sessions were audiotaped with permission of children and their guardians and were transcribed by the author for analysis. Drawing sessions were used with children aged 7-16.

Figure 4.7: Children engaged at the drawing sessions and discussion prompts used

4.6.3 "Snakes and ladders" game – Barriers and enablers

The barriers and enablers to active travel were elicited through the 'snakes and ladders' game whereby the children were split into two separate groups and took turns to throw a dice (Figure 4.8). If the child representing the group landed on a snake then they were asked to throw a cube with 'negative' images on each face of the cube, and the group then had to comment on the image, which landed face-up. If the child landed on a ladder then the group had to throw the 'positive' cube and comment on the image, which landed face-up. The 'snakes and ladders' game was used with younger children aged 7-11.

Figure 4.8: Snakes and ladders game with example of 'negative' journey image and 'positive' journey image used with the children

4.6.4 "Doctor Who Tardis" – Visioning exercise

This is a 'between tasks' visioning exercise that intended to encourage children's imagination before the drawing session "my journey to school in the future". - During this session, children were asked to walk through the Doctor Who Tardis (with blue flashing lights and Dr Who music playing as can be seen in Figure 4.9) and emerge on the other side imagining they were in 2030. The key questions they were asked were 'what is your vision of the future like? What will your street be like and how will you travel?' The visioning exercise was used with younger children aged 7-11.

Figure 4.9: Images of the "Doctor Who Tardis" and children during the visioning exercise

4.6.5 'My neighbourhood: a great place to walk and cycle'

Children were asked to sketch a typical street scene coming up with the key features of a sustainable community, with things to consider such as:

- How will people get around in your sustainable community?
- What about walkers and cyclists? What needs to be put into place for them?
- What will your sustainable community look like? Consider seating, greenery, street lighting, etc.

This drawing session (Figure 4.10), followed by discussion, was used with older children aged 12-16.


Figure 4.10: Children discussing their pictures at the drawing session

4.6.6 'My poster encouraging cycling and walking'

Children were put into groups and asked to design a poster encouraging walking and cycling. Each group showed their poster to the other groups and passed comments, which stimulated debate. This was made more interesting for the children by giving a small prize to the winning poster (Figure 4.11). The poster design competition was used with older children aged 12-16.


Figure 4.11: Children presenting their posters during the design competition

4.6.7 'Ketso' interactive hands-on toolkit

Ketso is an interactive, hands-on toolkit inspired by the concept of 'mind mapping' - a graphic technique for brainstorming that works by linking and arranging ideas around a central concept. The Ketso kit (as can be seen in Figure 4.12) consists of a set of tabletop tools and colourful 'branches', 'leaves' and other materials, which can be placed on a felt workspace and easily moved around in response to changing discussion. The Ketso toolkit was considered appropriate to use with children and adults as gives everyone a voice and therefore the opportunity to be more engaged in the activity. In addition, it allowed the

capture and display of participant's ideas and it was also a flexible tool that could be used with different sized groups. This mind mapping technique was used with older children aged 12-16, and with parents independently.

Figure 4.12: Groups of children and parents using the Ketso Kit

4.6.8 Semi-Structured Interviews (with older children aged 12-16 and with parents)

Semi-structured interviews were conducted with older children aged 12-16 and with parents to record opinions and thoughts about their experiences of getting around and their thoughts about how future transport may be. The sessions were based on a semi-structured interview guide with open-ended questions, which allowed participants the freedom to express their views in their own terms and in addition, provided the interviewer with the opportunity for identifying new ways of seeing and understanding the topic. The interview sessions were audiotaped and later transcribed by the author for analysis.

4.6.9 Focus Groups (with parents)

Focus groups were used to record opinions and thoughts of diverse aged parents and carers about what their experiences of getting around, using public transport and their thoughts about how future transport may be. The focus group encouraged informal

discussion between the participants and the discussions relied on open-ended questions so that there were many possible replies (Figure 4.13).

Figure 4.13: Groups of parents and carers from the Focus Groups

4.7 Sampling

In terms of sampling, in the statistical survey the researcher needs to know the probability for each member of the population to be selected in the sample (*probability sample),* therefore, a full register of population members is required as a sampling frame in order to estimate and determinate a sample size accurately. On the other hand, in a qualitative survey, as the nature of the process is one of 'discovery' rather than the testing of hypothesis, the approach to sampling is different. In this qualitative approach, that Lincoln and Guba (1985) describe as 'emergent and sequential', the selection of people (or texts or events) to include in the research follows a "path of discovery" in which the sample emerges as a sequence of decisions based on the outcomes of earlier stages of the research. Ultimately, the researcher pursues the investigation "until the questions have been answered and things can be explained" (Denscombe, 2007, p29). Further differences between the statistical and the qualitative survey in terms of time, size, composition and representativeness are as follows:

- In the qualitative survey the overall process can be exciting but it can also prove frustrating, as it tends to be *time-consuming* in a way that the 'snapshot' conventional survey approach is not (Denscombe, 2007).

- The size and composition of the sample is not completely predictable at the outset of the qualitative survey research as it is in the case of the statistical survey, and an estimate of which and how many people (texts or events) the time and resources

available, and “some reading of similar studies” at the outset of the research project “must remain exactly that – an estimate”. However, qualitative research tends to deal with relatively *small numbers* of instances to be researched (small-scale research frequently involve between 30 and 250 cases (Denscombe, 2007, p.29).

- Regarding representativeness, the selection will try to include stances that are special, for the reasons being extreme, unusual, best or worse. This leads the qualitative researchers towards non-probability sampling techniques such as ‘purposive sampling’, ‘snowballing’ and ‘theoretical sampling’. In a non-probability sample people are chosen deliberately for certain characteristics believed to be relevant to the study, but because they are selected intuitively rather than scientifically, they cannot be relied on to represent the whole population fairly (Backstrom et al., 1981). A graphic of the sampling process in the Qualitative Survey derived from Denscombe (2007) is shown in Figure 4.14 below.

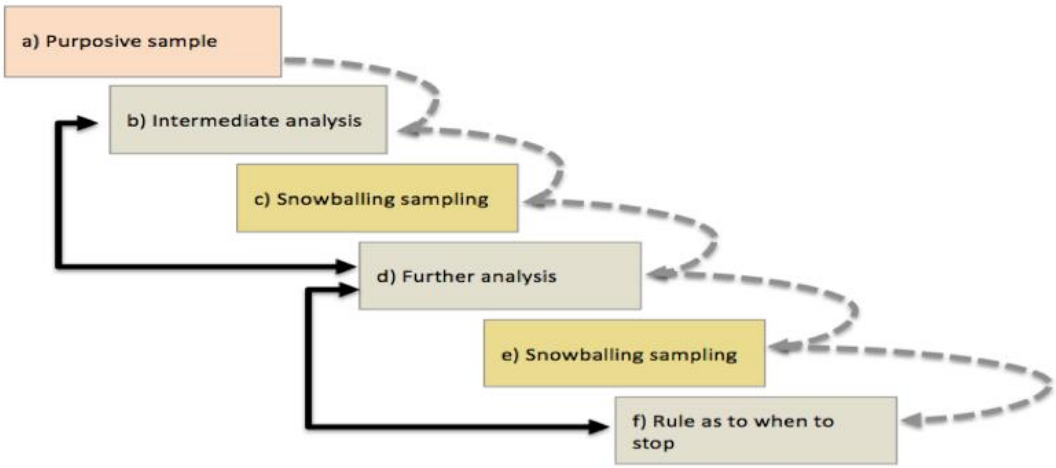


Figure 4.14: The Sampling Process in the Qualitative Survey (Source: Graphic derived from Denscombe, 2007)

The approach to sampling in the case of this PhD research, as per Denscombe (2007) and Lincoln and Guba (1985), followed a path of sequential discovery of the instances to be studied, and this process took a considerable length of time. For the purpose of this research, a combination of ‘purposive’ and ‘snowballing’ sampling techniques were considered appropriate to achieve representativeness (in terms of diversity) of the people selected. In purposive sampling, specific people (or events) are deliberately selected with a specific purpose that reflects their particular qualities and relevance to the topic of investigation (Denscombe, 2007). With snowballing, the sample emerges though a process of references from one person to the next, and these nominations are then

contacted and, it is hoped, included in the sample; the sample thus snowballs in size as each of the nominees is asked in turn, to nominate further persons who might be included in the sample (Denscombe, 2007).

As can be seen in Figure. 4.15 below, a purposive sample of children aged 7-11 attending primary schools in the urban area of Manchester was initially considered appropriate to represent children with different characteristics (age, gender, travel mode etc.) relevant to this research. As the research advanced, the snowballing sample was effective for developing the diversity involved in the sample, as follows:

a) A purposive sample of 51 children aged 7-11 attending primary school was obtained initially through activity groups and from one-to-one interviews at schools and households.

b) An intermediate analysis was performed to develop partial categories such as travel mode, (e.g. active travellers and non-active travellers). The initial findings revealed that out of the 51 children, 32 are driven to school, 18 walk and only 1 cycles to school. Out of the 32 children who are driven to school, 14 live too far away to walk; but 18 live close enough to walk or cycle to school. Two of the main reasons given by children not to walk or cycle to school was parental convenience (drop off on their way to work), and parental concerns over safety (do not allow them to walk or cycle on their own).

c) Decided on a strategy to find uncovered categories, such as participants who are not represented in the categories as developed in step b), in this case, the reasons behind the decisions of parents or carers of primary school children that live close enough to school for not allowing them to walk or cycle; and most importantly, what could be done about it. A sample of 34 parents was then derived from the children's sample by the snowballing method of sampling.

d) Further analysis was performed to develop categories, in this case parents with one or more children, with diverse marital and occupational status, etc. Initial findings revealed that parents consider the younger age of children as one of the reasons not to let them walk or cycle to school independently. It was therefore decided to target older children, aged 12-16, attending secondary schools in the urban area of Manchester, with the aim of comparing initial findings with those of primary schools.

e) A purposive sample of 45 children attending secondary schools was then obtained.

f) After further analysis without relevant new information it was decided to stop.

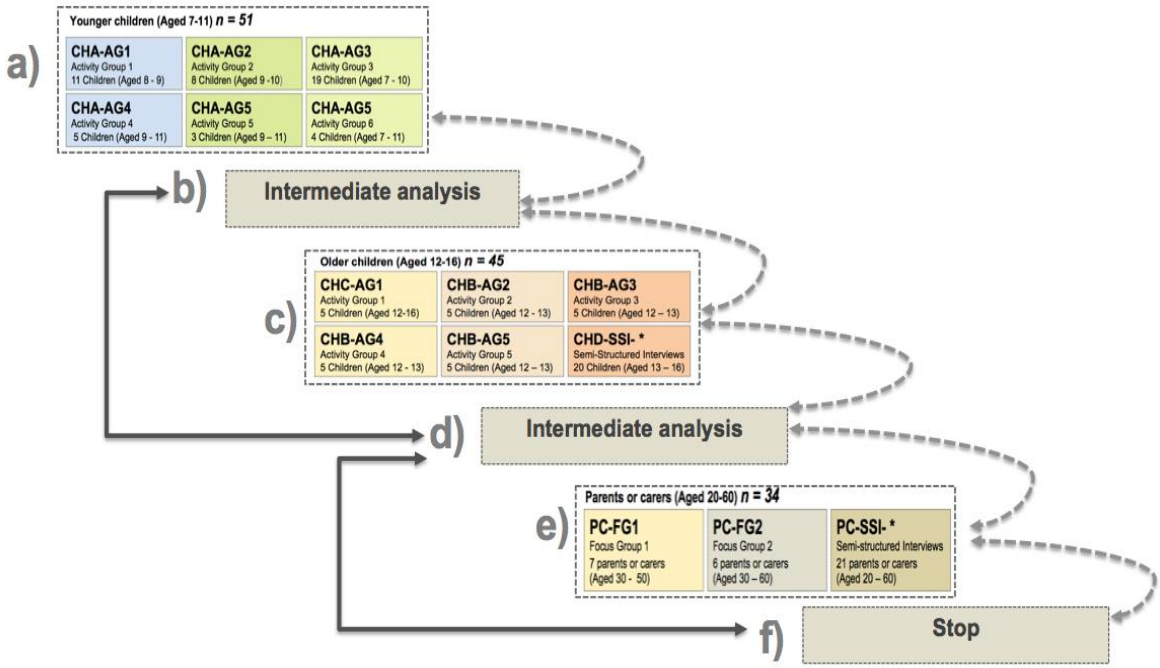


Figure 4.15: Sample process followed by this PhD research

In total, a sample of 130 participants was obtained through 12 activity groups, 2 focus groups and 42 one-to-one semi-structured interviews carried out in three stages during 2011 (from February to May and from September to November) and during 2012 (from January to April). Groups varied in size from 5 to 9 participants and included both genders. The sessions were carried out in quiet locations, such as classrooms within the school buildings or at family households. Where possible, only the author of this research and the participants were involved. However, in some cases, another adult was present, for example, a teacher or school assistant. Participants were given assurance of confidentiality at every session. None of the participants have been disclosed by name or other means by which they potentially could be identified; therefore, an associated anonymity letter code was created to designate each of the groups. 51 of the participants corresponded to the group of younger children aged 7-11 (**CHA** letter code); 45 corresponded to the group of older children aged 12-16 (**CHB-CHC-CHD** letter codes); and 34 corresponded to the group of parents or carers aged 20-60 (**PC** letter code).

4.8 Data analysis

As discussed earlier, when discussing the sampling technique for this research, in the qualitative approach, data collection and analysis are not rigidly separated but conducted simultaneously (Maxwell, 2005). Both processes are transactional and cyclical as one sheds light onto the other originating subsequent collections, analysis and interpretations, e.g., an initial bout of data collection is followed by analysis, the results of which are then used to decide what data should next be collected; and, the cycle is then repeated until theoretical saturation or the explanation of the phenomenon is reached (Jansen, 2010, Robson, 2002).

Although there are several approaches to qualitative data analysis, Miles and Huberman (1994) outline three: 'interpretive', 'social anthropology' and 'collaborative social research'. The first approach is concerned with making sense of research participant's accounts, so that the researcher is attempting to interpret their meaning. The second approach is an analysis process that focuses on regular patterns of human behaviour in data, for example, the exact use of particular language or grammatical structure. Finally, the 'collaborative social research' approach attempts to focus attention on the researcher and her or his contribution to the data creation and analysis process.

Qualitative researchers choose their approach to qualitative data analysis not only by the research questions and types of data collected but also based on the philosophical approach underlying the study. Whichever of these three possible approaches is taken by researchers, the analysis and interpretation of data in the qualitative approach is a 'reflexive' part of the research process and is tightly linked to the data collection stage (Miles and Huberman, 1994).

As part of the analysis, qualitative data typically need to undergo a process of reduction that selects, distils, simplifies, and transforms them into a format that can be more readily managed (Miles and Huberman, 1994). Richards (2009) recognises three stages of data reduction:

- At the first stage in the research event, when it is decided what data will be recorded and what will not.
- At the second stage during the making of the data record, when it is decided what will be fully transcribed, only summarised or not transcribed at all, and,

- At the third stage during the analysis, as the understanding and confidence of the data grows, when it is decided what data will be discarded because they are off-topic or irrelevant to the research.

During this process, the researcher moves from the data collection stage to the analysis and interpretation stages, on an iterative and highly transactional mode, that entails developing categories to classify the initial data, then going into subsequent collections, analysis and interpretations etc. until a saturation of categories is reached (Jansen, 2010). According to Maxwell (2005, pp 236), the strategies for qualitative analysis can "and should be combined" and fall into three main groups: categorising strategies (such as coding and thematic analysis), connecting strategies (such as narrative analysis and individual case studies), and, memos and displays (to make sense of the data).

4.8.1 Data handling

Miles and Huberman (1994) argue that one substantial problem appears at the analysis stage and comes from the 'multiplicity of data sources and forms' of the qualitative data, which often, due to its nature, originates a high volume of material to be managed. Regarding this PhD research, the sessions carried out with children and parents lasted approximately 15 to 20 minutes and were digitally recorded using standard Dictaphones. The records were subsequently fully transcribed for data analysis by the author of this research. All names and any details that could identify the child, the school or families, were removed from the transcripts from the semi-structured interviews, focus groups and activity groups.

As specialist computer software is considered useful to manage and work with large volumes of qualitative data, the author of this research considered it as appropriate for the classification, sorting and arrangement of the information obtained through the data collection methods, therefore, the initial transcripts, as well as all sources such as scanned drawings and photographs, etc. were entered into the computer-assisted qualitative analysis software programme NVivo 9.2.

Thematic analysis was used to analyse the content and context of the transcripts. Thematic analysis is a conventional practice in qualitative research, which involves searching through the data to identify any recurrent patterns that can be coded in order to develop themes (Boyatzis, 1998). At the first round of coding, data was gathered together under four codes, which were converted to 'nodes', 'trees, or 'child'. For example, initial nodes were 'barriers', 'enablers' 'changes' etc. As the data collection progressed, new

themes emerged under the 'nodes', which were added into the Nvivo programme and coded from the transcripts from the one-to-one semi-structured interviews, focus groups and activity groups. In addition, nodes with demographic information or 'attributes' that represented each person involved in the research were created as 'cases'. Prior to coding the transcripts, the author of this research listened in full to the material recorded to help immerse herself in the data and if necessary to correct the transcribing. The full journey through NVivo can be found in appendix C of this thesis.

At the second stage of the data analysis, thematic ideas were emerging from this process with the data connected together through memos. A further round of coding to these thematic codes was performed. At this stage, the classification of the themes was based on the Synthesis of Factors and Variables that affect Children's Active Travel to School (Fig 2.7 in Chapter 2 of this thesis). According to the synthesis: **at the individual, family, family and household level**, besides the characteristics of parents and children (age/gender/ethnicity) and the family status; the psychosocial variables that affect parents' and children's decision-making process about active travel to school that can be influenced by the parent or by the child are:

- Physical and cognitive ability; preferences; attitudes towards active travel, public transport, car use, the environment and climate change; and; culture/beliefs.

- Parental perceptions of responsibility for the safety of dependents; parental permission; perceptions of easiness and convenience: travel time, time pressures, commitments, schedules, time available during school routines, strategies in place; activity trip chains or multipurpose journeys; resources: household transport options; availability of space and equipment required; related costs; and perceptions of weather.

- Perceptions of safety: refers to perceptions of personal safety (risk and fears of attacks); and to traffic safety (risk and fears of traffic) on the route to school (in the case of children) and further destinations (in the case of parents).

At Community (neighbourhood) level the variables are of two types: social and physical environmental:

- Socio Economic Status (SES) and characteristics of the neighbourhood; accessibility, high density, mixed land use availability of everyday facilities and

convenience, street patterns: connectivity of the street network, permeability, distance, topography and aesthetics of the urban environment.

At a wider national and local level the determinant is *Policy*, by funding social campaigns for crime prevention and also by funding physical infrastructure supporting active travel at community (neighbourhood and school) levels.

Therefore, the emergent themes that have been classified as barriers and enablers to active travel to school at individual, family, community and local/national level; are presented in Table 4.1 and are described in detail in chapters 5 and 6 respectively; whilst the themes emerged as the aspects that would encourage active travel to school (and also appear in Table 4.1), are presented in chapter 7 of this thesis.

Table 4.1. Classification of the emergent themes as Barriers, Enablers and aspects that Would Encourage Active Travel to school

Individual Level **Household and Family Level** **Community (Neighbourhood) Level**		**Wider (local and national) Level**
BARRIERS	**ENABLERS**	**WHAT WOULD ENCOURAGE ATS**
Perceptions of risk (personal and traffic)	*Perceptions of safety and pleasance*	*Changes to the physical environment*
Health and fitness issues	*Health and fitness benefits*	
Issues with public transport	*Positive perceptions of public transport*	*Changes to public transport*
Bad weather	*Good weather*	
Negative perceptions of cycling	*Positive perceptions of walking and cycling*	*Changes to the approach to active travel*
Time and schedule issues	*Planning ahead*	
Issues with work and other destinations	*Living close to school, work and other facilities*	*Changes to the social environment*
Long distance and lack of direct routes		
Cost and availability issues	*Cost and access*	*Reluctant to change*
Lack of storage and facilities	*Appropriate equipment*	
Positive perceptions about car use	*Negative perceptions about car use*	*Changes to the use of private vehicles*
	Social and developmental benefits	
	Environmental benefits	

In addition, as the quantity of the data is significant, verbatim quotes are provided as samples, which have been chosen because they reflect a particular theme. Regarding the quantification of the importance of the classification of the themes, although the qualitative survey research method downplays the use of statistical analysis, it is considered that

counting the frequency of a word or a phrase in a given data set, gives an idea of the prevalence of thematic responses across participants; and simple keywords searches or word counts within a data set, can allow a quick comparison of the works used by different subpopulations within an analysis (Namey et al., 2007). Therefore, in order to illustrate the most common perceived themes by children and parents in this research, some frequencies of references that have been obtained from the NVivo software are provided in the next chapters.

4.8.2 Participant Distribution

Although the qualitative survey research method downplays the use of statistical analysis it is useful to provide frequencies of participants under various characteristics to help the reader to understand the diversity of those involved in the study. The characteristics of participants are shown in the charts in Figure 4.16 and Table 4.2. From a total of 130 participants, 96 were children and 34 were parents. From the group of children, 51 were aged 7-11 and 45 were aged 12-16. 51 were considered active travellers (AT) as their usual mode of transport was walking or cycling and 79 were considered not active travellers (NAT) as their usual mode of transport was based on cars and public transport use. All the children involved in this research lived within the 'statutory waking distances' (discussed in section 3.2 of this thesis) of 2 miles (under the age of 8), and 3 miles (aged 8 and over).

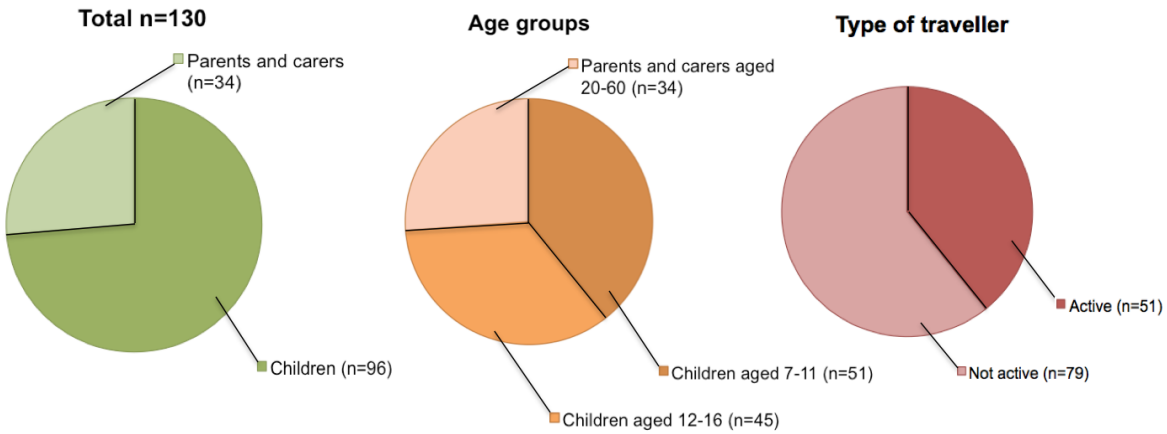


Figure 4.16: Characteristics of participants by group, age group and type of travel mode.

Table 4.2. Characteristics of participants by gender and travel mode

	CHILDREN *n=96*				PARENTS *n=34*	
AGE GROUP	**7-11 *n=51***		**12-16 *n=45***		**20-60**	
GENDER	Male *n=16*	Female *n=35*	Male *n=31*	Female *n=14*	Male *n=6*	Female *n=28*
CAR	9	23	5	2	-	15
CYCLE	1	-	5	-	3	1
WALK	6	12	9	8	1	5
BUS	-	-	12	4	1	6
OTHER	-	-	-	-	1	1

In addition, as can be seen in the charts in Figure 4.17, within the group of children aged 7-11, 32 of them used the car to travel to school, which made it the most usual mode of transport. 18 children walked to school, only three of them walked independently (all male) and only one child (male) cycled to school, which made it the most unusual mode of transport for children in this group. In contrast, car use to travel to school reduced significantly in the group of children aged 12-16, as only 7 children in this group used cars to go to school. Walking and travel by bus were the most usual modes of transport to school in this group, with 16 children using the bus and 17 walking to school independently. The use of the bicycle to travel to school was also the most unusual mode of transport for children in this group, as only 5 of them (all male) reported cycling to school independently. With regards to the group of parents and carers, the car was the main mode of transport for 15 of them, whilst transport by bus and walking were the second choice of transport. Only four parents cycled regularly: three of them were male and one female.

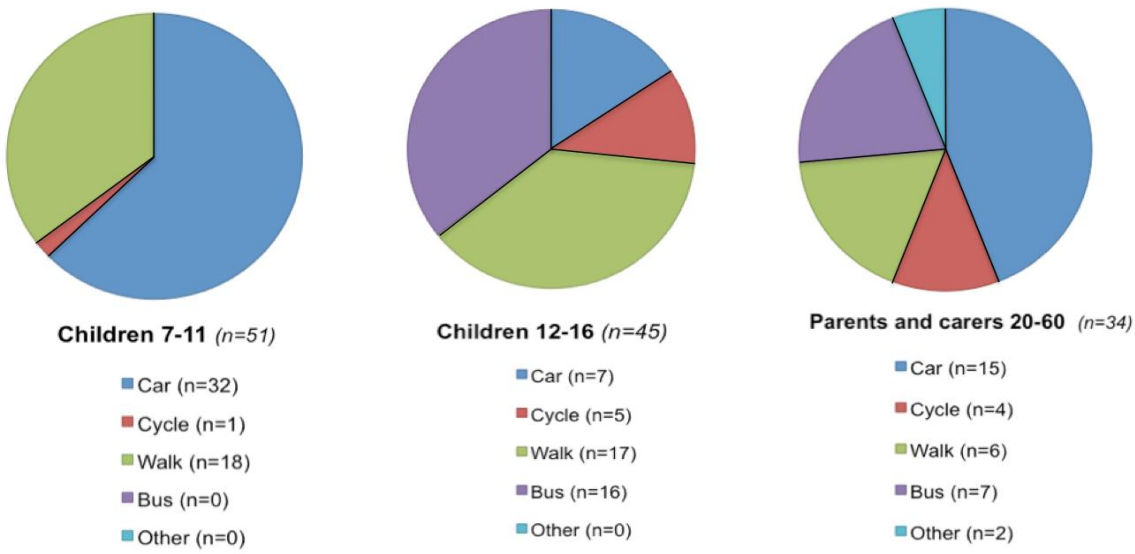


Figure 4.17: Travel mode choices for the group of participants.

4.9 Validity and reliability

Debate on the usefulness of the concepts of validity and reliability in qualitative research has been undertaken for many years (Kelle and Laurie, 1995). Some researchers suggest that whilst these terms are inappropriate in qualitative research, preferring to use terms such as "trustworthiness", "rigorousness", or "quality" of the data, it is nevertheless important that qualitative research and data analysis are carried out in a thorough and transparent manner (Creswell, 1998; Lincoln & Guba, 1985; Miles & Huberman, 1994). But because of the lack of detail and scrutiny in most published research on how the analysis process is carried out, qualitative data analysis, as a research tradition has been open to allegation of “unthorough” research practice. However, according to Clifton and Handy (2001) qualitative methods can have the same rigour and credibility as quantitative methods provided that researchers follow a systematic process, paying attention to validity, consistency, and reliability issues during data collection and analysis. Furthermore, Kirk & Miller (1986, p.21) suggest that validity in qualitative research "is ... a question of whether the researcher sees what he or she thinks he or she sees" so that there is evidence in the data for the way in which data are interpreted.

In dealing with validity, this PhD research followed some strategies that according to Maxwell (2005) increase credibility of the conclusions, e.g., ‘triangulation’, the use of ‘rich’ data, and the use of specialist computer software.

In terms of triangulation, according to Maxwell (2005), collecting information from a diverse range of individuals and settings, and using a variety of methods reduces the risk of chance associations and of systematic biases due to a specific method and allows a better assessment of the generality of the explanations that the author develops. This research, therefore, collected data from a diverse range of individuals, which included groups of young children, aged 7-11, older children aged 12-16 and parents aged 20-60 at different schools and households. In addition, specifically in relation to children, a concern, which applies to all methods, is to ensure that the information obtained is valid in that it represents the perspective of the child, whether of a particular time, or a more permanent attitude. This, according to Lewis and Lindsay (2000) can be limited by poorly worded questionnaires which inhibit or truncate the child’s full and necessary expression, or by using a sound method but without adaptation for the children concerned, taking account of their developmental status, for example. Therefore, this research followed the recommendations by Morrow (2012, p.12) that suggests to avoid “an over-reliance on one type of data-collection method” which “can lead to biases in any research” by drawing on a range of creative methods, and by using interactive and participatory methods of data

collection adapted and designed for children, which have been discussed in more detail in section 4.5 and 4.6 of this thesis.

Which regards to "rich" data, which has been defined as the *"product of detailed, descriptive note – taking or transcribing of the specific, concrete events that the researcher observes or obtains"* (Maxwell, 2005, p.242) the author of this research did not take just notes but voice recorded all the sessions facilitated during the fieldwork. Therefore, this research obtained rich data derived from the verbatim transcripts from the semi-structured interviews, focus groups and activity groups. Such transcripts provided enough detailed data, which was helpful in providing a full and revealing picture of the participant's perceptions about active travel to school, not only on what the author felt was significant. In addition, the author kept a record of all the graphic material derived from the sessions with parents and children, e.g., drawings and photographs, which also helped to illustrate the material generated by the participants.

In addition, using software in the data analysis process has been thought by some to add rigour to qualitative research (Richards & Richards, 1991). Therefore, this research has tried to achieve such rigour by using NVivo 9.2, and more specifically its search facility that is considered one of the main assets facilitating interrogation of the data (Richards & Richards, 1991). Regarding this, an interrogation of the data based on the number of references given by the participants with respect to certain aspects of this research, allowed the author to test and support claims that are inherently quantitative, but also enabled the author to assess the *amount* of evidence in the data that bears on a particular conclusion and from how many different sources they were obtained. According to Maxwell (2005) this process is called 'quasi-statistics' and is another of the strategies to increase credibility in the conclusions of research.

The research rejected other strategies such as 'respondent validation', (that focuses on obtaining systematic feedback from the people the author is studying about the author's data and conclusions) or 'comparison' (that focuses on making explicit comparisons particularly in multisite studies) because of time constrains regarding the limited period of time of this PhD research, the difficulty in accessing the participants, especially the group of children, which is time consuming in terms of negotiating access with schools, guardians, etc. and also the author's lack of funding to incur further research.

In terms of generalizability, that has been defined as *"the degree to which the findings can be generalized from the study sample to the entire population"* (Polit and Hungler, 1991, p.

645), qualitative researchers often study only a single setting or a small number or individuals or sites, using theoretical or purposeful rather that probability sampling, and rarely make explicit claims about the generalisability of their accounts. Indeed, according to Maxwell (2005) the value of a qualitative study may depend on its lack of generalisability in the sense of being representative of a larger population, yet, it may provide an account of a setting or population that is illuminating as an extreme case or "ideal type" (p. 245). However, Maxwell (2005) also acknowledges that qualitative research is generalizable or "transferable" by a different logic from that of a sample survey. Yin (2003) describes these as "analytic generalization" and "statistical generalization", respectively. Analytic generalization is not generalization to some defined population that has been sampled, but to a theory of the phenomenon being studied, a theory that might have much wider applicability than the particular sample studied. Therefore, for the purpose of this research it can be argued that regardless the size of the sample (130 participants), it was not intended to make statistical generalisation to a larger population, but rather as Yin (1994) explained, it was intended to make analytical generalization to expand theory, as it is believed that the results of this study can provide ground for a deeper understanding that can inform theory and practice and also for possible replication to other similar or larger studies.

4.10 Ethical considerations

Maxwell's interactive model (2005) emphasises that the ethical considerations should be involved in every aspect of the research design. Ethics in research have been defined as the application of a system of moral principles to prevent harming others, to promote good, to be respectful, and to be fair (Sieber, 1993; Morrow 2010). Although according to Lewis et al (2000), research with children poses the same ethical questions that apply to other types of research, further considerations need to be taken into account when researching children and young people. For example, Morrow (2010) stipulates that 'practitioners' should be socially and professionally responsible and competent in their interactions, in the set tasks and in the treatment of information required. Furthermore, appropriate training and obtaining consent from gatekeepers is required before establishing contact with children.

Children are one of the groups to be considered 'vulnerable' by The Safeguarding Vulnerable Groups Act 2006, the Protection of Vulnerable Groups (Scotland) Act 2007 and the Safeguarding Vulnerable Groups (Northern Ireland) Order 2007. The Acts define children as being under 18 years and following the requirements, people who seek to work with children or vulnerable adults are currently vetted through a system that involves

employers applying to the Criminal Records Bureau (CRB) for disclosures about new job applicants, under arrangements set out in the Police Act 1997. CRB disclosures include information from police databases and local police records about the individual's criminal record and may also include other information held by the police.

For the purpose of this PhD research, ethical approval was secured from the School of the Built Environment through the VISIONS2030 Project in order to engage with children and issues related to data protection, privacy, confidentiality, and informed consent has been specified. A copy of the ethical approval can be found in Appendix D of this thesis. The PhD researcher also obtained a certificate from the Criminal Records Bureau (CRB). Consent from adult gatekeepers (parents, school teachers and head teachers) was obtained before any approach was established. Each school, group or person participating voluntarily in this research was informed about the nature and purpose of the research and also about the purpose and extent for which the research information was to be used. Special care was taken in protecting confidentiality for all the participants.

4.11 Summary

This chapter introduced the philosophical underpinning of this PhD that in terms of epistemology and ontology is situated in the interpretivist and social constructivist paradigms, from the view that reality is socially constructed and given meaning by people (Easterby-Smith et al., 2002). In terms of axiology, this research assumed a subjective, value-laden criteria and the author constructed her own "truth' of the social reality by the application of critical interpretations and the gradual establishment of research conclusions (Remenyi et al., 1998).

Subsequently, this PhD research adopted a qualitative approach because it was seeking to understand complex phenomena in context-specific settings. Hence the strategy adopted was qualitative survey, which studies diversity (not distribution) in a population and it does not aim at establishing frequencies, means or other parameters but at determining the diversity of some topic of interest within a given population (Jansen, 2010). The questions posed to the participants of this research at the level of data collection were guided by the synthesis of frameworks of factors and variables that affect children's Active Travel to School resulting from the literature review in chapter two of this thesis.

This research used focus groups, activity groups and semi-structured interviews as the methods to collect the data. Furthermore, a range of participative and play-based interactive methods, which included drawing and mapping, were designed to use with children from different age groups.

With regards to sampling, for the purpose of this research, a combination of 'purposive' and 'snowballing' sampling techniques were followed. A sample of 130 participants consisting of 51 children aged 7-11, 45 children aged 12-16 and 34 parents aged 20-60 was obtained through 12 activity groups, 2 focus groups and 42 one-to-one semi-structured interviews.

In dealing with validity, this PhD research followed some strategies such as 'triangulation', 'rich' data and the use of specialist computer software (NVivo9.2), in order to increase credibility of the conclusions.

In terms of ethics, this PhD research obtained ethical approval, a certificate from the Criminal Records Bureau (CRB) and consent from adult gatekeepers (parents, schoolteachers and head teachers) in order to approach and engage in research with children.

CHAPTER 5: RESULTS - EMERGENT THEMES AS BARRIERS TO ACTIVE TRAVEL TO SCHOOL

5.1 Introduction

As stated in the introductory chapter, one of the objectives of this PhD research was to investigate the factors that affect children and parents' trips to school choices. This chapter discusses in detail the themes that emerged from the analysis of the empirical data and that represent what children and parents perceive to be the most important barriers to active travel to school at individual, family, community, and wider society/environmental levels in sections 5.2. A graphic synthesis of the barriers to active travel to school is presented in section 5.3. An analysis of the barriers by group, age, gender and travel mode is presented in section 5.4. Finally, a summary of the chapter is presented in section 5.5.

5.2 Emergent themes as barriers

As identified by both children and parents participating in this research, the most common barriers to active travel to school can be categorized into 11 themes: *'perceptions of risk', 'health and fitness issues'; 'issues with public transport'; 'bad weather'; 'negative perceptions of cycling'; 'time and schedules'; 'issues with work and other destinations'; 'long distance and lack of direct routes'; 'cost and availability'; 'lack of storage and facilities' and 'the positive perceptions of car use'* (Figure 5.1). The 11 themes included a total of 70 sub themes that are presented in detail in the following sections.

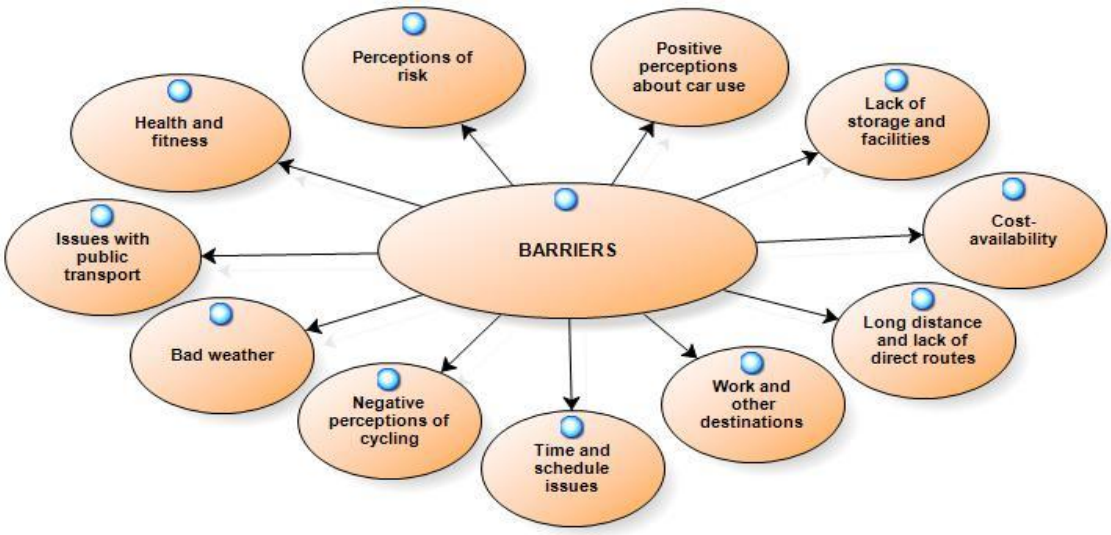


Figure 5.1: The barriers to active travel to school as identified by children and parents

5.2.1 Perceptions of personal risk

Perceptions of personal risk includes 'issues of permission'*, 'lack of confidence', 'bad past experiences'* in relation to cycling, the danger of *'cycling in groups or with children'*, *'stranger danger', 'bad quality of surfaces', 'unsafe and rundown areas'* and '*lack of bike safety and security'* (Figure 5.2),

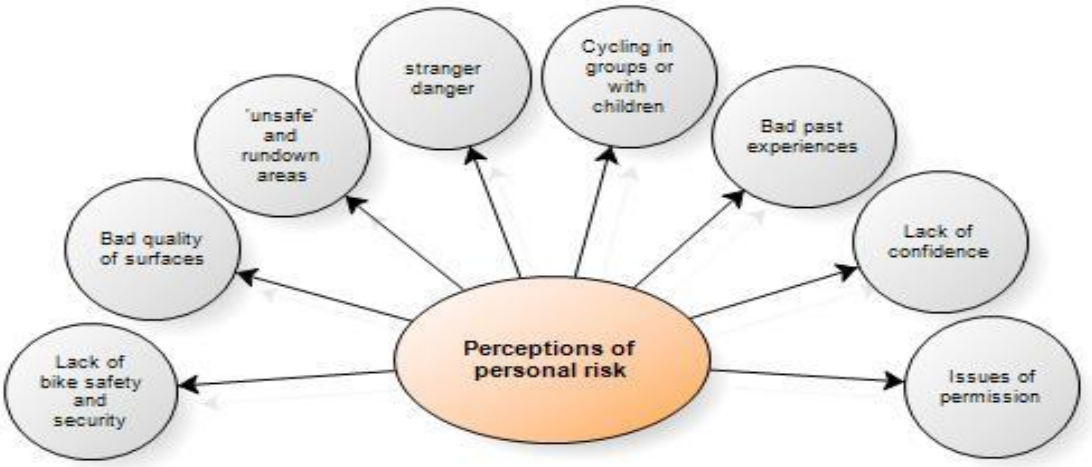


Figure 5.2: Perceptions of personal risk

Issues of permission

The main issue in relation to safety reported by children for not walking or cycling is getting their parents' permission in order to be allowed to do it,

> CHA-AG4: *"My mum doesn't think is safe because there is a lot of main roads where we live and we live like opposite a big road"* (Girl aged 12-16)

In further discussing the issue some children perceived that they could and would walk or cycle on their own if they were allowed to, but their parents don't allow them because of their own safety fears. In fact, some children reported to have ventured to walk or cycle further away on their own without their parents even knowing about it.

Parents and carers, on the other hand, expressed concern about the immature judgment on the part of their children to negotiate traffic and their ability to make good split-second decisions. This concern was age and gender related, as they perceived that younger and male children lose concentration easier than the female ones:

PC-SSI-16: Some children cannot anticipate the fast moving traffic. And even with training, in the case of my youngest children, I think I will have to test them, I don't trust them fully. (female parent)
PC-SSI-15: My boy is going to be 9 and my girl is going to be 10, if they are going to walk together, I trust the girl more that her brother because she is more patient and alert for crossing roads (female parent)

Lack of confidence

Children report their own age and ability to negotiate 'traffic' and having to cross 'main roads' on the way to school as a limitation to walking and cycling, whilst parents and carers report a 'lack of confidence' about cycling on roads with heavy traffic,

CHA-AG1: *"Because you really young and you might not really know how to cross the road and a car can knock you down"* (Girl aged 7-11)

Bad past experiences

Parents and carers reported accidents in childhood as the reason why they currently do not cycle:

PC-SSI-16: *"Yes, I would like to but I had a bad experience, a kind of accident during my childhood and that left me feeling quite nervous about cycling. So I would have to overcome those fears first"* (female parent)

Cycling in groups or cycling with children

Children are frightened about getting injured while cycling in groups: 'it's more dangerous to cycle with friends as they may get in the way' or due to problems with the bike, i.e. 'chain falls off'. Cycling with children is considered by some parents as 'dangerous', 'more risky' and a 'major responsibility' and causes them fears of having to 'squeeze' in on roads with heavy traffic:

PC-SSI-06: *"It is too dangerous to be cycling on the road with the children. I think I'd still use my car"* (female parent)
PC-SSI-15: *"but I'm afraid of cycling, mainly on the main roads, because of the traffic. I had an accident whilst cycling with my daughter not too long ago, because a big car got too close to us and I was riding near the kerb and I got so nervous about it, that I lost my balance and I fell over with the bike"* (female parent)

Stranger danger

The presence of 'strange' people on the route to school deters some children from walking. In the case of younger children, they report fear of strangers or fears of abduction. Parents also report fears for children's safety in terms of 'stranger danger' for not letting them walk or cycle unsupervised,

> CHA-AG4: *"I don't like walking through the alleyway because I've seen strange men; they are always there, so I always ask mum for a lift"* (boy aged 7-11)
> PC-SSI-15: *"I don't think so, because we have also have some warnings from the police and the school about children safety, because it seems that there have been some cases of older people trying to approach children on their own. So, I'm afraid of this and that is why I stay with my daughter at all times, I wouldn't leave her alone"* (female parent)

In addition, female parents reported that other people's behaviour as a barrier to walking,

> *PC-FG1: "Sometimes when I walk nearby my house there are people messing around and drinking. It discourages me walking from my house to the places near these people's house" (female parent)*

Unsafe and rundown areas

Children fear walking and cycling through risky routes involving run down or poorly lit areas where they could be 'hurt', 'bullied', 'beaten up' or 'attacked',

> *CHD-SSI-22: "When I go through the first alleyway, the house, like at the side of it, the bricks are falling apart, falling down and then there is this metal stick sticking out, is like a pin and at the end is very sharp and I fell once and I hurt my knee, is like, the stick is this big and it is metal" (boy aged 12-16)*
> *CHA-AG4: "in winter when it is dark on the alleyways, my Nan just tells me to walk around the long way, where there are more people and is more safe and there is more light" (boy aged 7-11)*

Bad quality of surfaces

Children consider the bad quality of the walking or riding surfaces, i.e., uneven pavements, slippery or icy surfaces (particularly in winter) to be dangerous, as they may 'slip' and 'fall'. Walking is also considered 'inconvenient' if there are puddles or muddy surfaces and 'uncomfortable' if the surfaces are cobblestoned. Parents also consider walking 'unsafe' on uneven pavements or on wet and icy conditions,

> CHA-AG4: *"When it's been raining, in the alleyway, is always really slippy [sic] and I always fall over because the path is made of like cobble stones, and also there are huge gaps on them. I think is mainly on winter that they get really slippy [sic]"* (boy, aged 7-11)

Lack of bike safety and security

Children worry about bike security at school (lack of locks, bike theft). Parents also consider bike security (lack of locks, lack of secure parking, and bike theft) as a barrier to cycling,

> CHD-SSI-21: *"Most people's stuff at my school gets stolen a lot, so [cycling] it is like not the safest thing to do"* (girl, aged 12-16)

5.2.2 Perceptions of traffic risk

Perceptions of traffic risk include *'driver's lack of awareness'*, '*having to cross roads with heavy or fast traffic'*, *'lack of pedestrian crossings'*, *'lack of cycle lanes'*, and *'narrow pavements'*, (Figure 5.3),

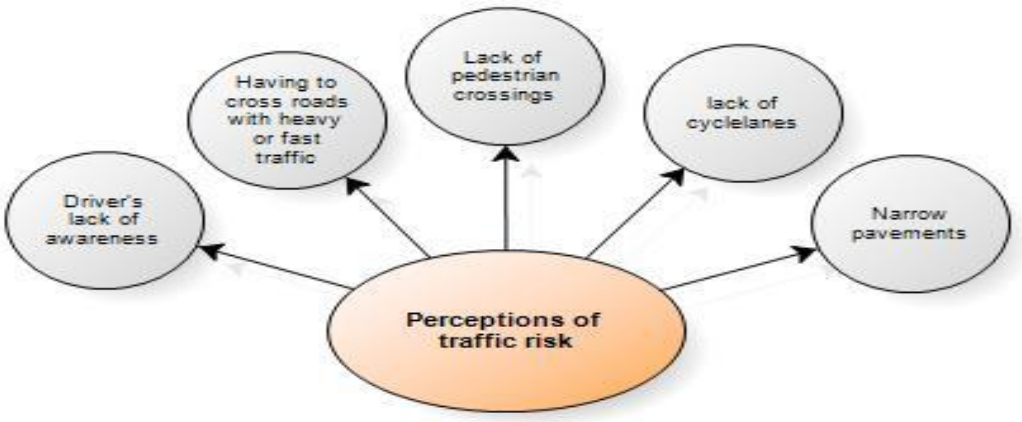


Figure 5.3: Perceptions of traffic risk

Driver's lack of awareness

Children seem afraid of the lack of awareness or the attitude of some drivers towards them or other pedestrians and cyclists,

> CHA-AG5: *"Because when you cross the roads there might be someone that can't see us and may crash us"* (Boy aged 7-11)
>
> CHD-SSI-09: *"My dad rides a cycle; he never ventured to go to work in his bike because of the level of animosity that drivers have got for cyclist now... they don't give them much time on the road to manoeuvre"* (Girl aged 12-16)

Parents also reported the 'careless' attitudes of drivers without consideration for cyclists or children as one of the main issues to not cycling themselves or letting them walk or cycle to school,

> PC-SSI-20: *"I've seen people rushing in their cars in the morning without any consideration for children walking or cycling and I have seen a couple of accidents around school and that makes me feel that I don't want to expose my children to any danger, so I don't want to send them to school on their own"* (female parent)
> PC-SSI-13: *"I'm not very confident with other drivers! that would be a struggle for me. How the people are in the roads, I've seen that is not that courteous, so I worry!"* (female parent)
> PC-SSI-15: *"the main problem is the attitude of other drivers that makes me feel like I don't belong on the road"* (female parent)

Having to cross roads with heavy or fast traffic

Children express their fears of becoming involved in accidents crossing busy roads or roads with fast or heavy traffic whilst walking or cycling to school. Those fears include being 'run over' or 'hit' by cars around school at busy periods, according to their own experiences,

> CHA-AG2: *"There are two main roads so there are cars coming each way"* (boy aged 7-11)
> CHA-AG4**:** *"At school basically they banned normal people of going in the staff car park because someone got run over once but they are still going in. They should make it illegal because I think two people got run over"* (boy aged 12-16)

The main barrier reported by parents to their children' walking or cycling were the number of busy roads that they would have to cross and the fast moving traffic,

> PC-SSI-15: *"I don't think that would be possible, as we cross three main roads in the route to school and one of them is very dangerous because it has a lot of traffic"* (female parent)
> PC-SSI-19: *"safety, I don't know how, I'm very scared to send my children to school by themselves at the moment because they have to cross a main double carriageway in order to go to school, and the cars go very fast"* (female parent)

Parents and carers consider cycling 'dangerous' if it has to be done on busy roads with heavy or fast moving traffic. Parents and carers express concerns about their children cycling on busy roads especially at school times, therefore they limit their cycling to weekends and mainly in parks,

> PC-FG2: *"I used to cycle before, now it is too dangerous because of the traffic"* (female parent)

Lack of pedestrian crossings

The lack of pedestrian crossings on the route from home to school is a barrier to children's walking,

> CHA-AG2: *"Maybe, but it will be hard to cross the main road because the cars keep going really fast and there is no traffic lights until the very bottom. I usually cross the road with my mum and dad and I could do it on my own if I go all the way to the traffic lights but it is a bit of a long way"* (Girl aged 7-11)

Parents and carers also consider the lack of pedestrian crossings a barrier to walking,

> PC-SSI-06: *"There are not enough crossings when you try to get across the roads"* (male parent)

Lack of cycle lanes

Children and parents consider the lack of cycle lanes a barrier to cycling. Cycling is considered 'dangerous' and also 'difficult' if there are not enough 'continuous' cycle lanes or there are obstructions on them such as bins, parked cars, etc.,

> PC-FG2: *"I don't cycle because I think is dangerous and there aren't enough cycle routes"* (female parent)
> PC-FG2: *"Sometimes you find painted cycle paths on roads but cars have parked on them, so, the cyclist has to mix with the cars"* (female parent)

The lack of separated cycle lanes pushes people to share the road with traffic in difficult conditions, or to stop riding altogether. Women, in particular, report feeling vulnerable having to share the roads with vehicles,

> PC-SSI-12: *"That left 3 options – ride in the gutter and get clipped by motorists trying to squeeze by, ride on the footpath and dodge pedestrians, or not ride at all. Sadly, I've chosen the latter unless separated bike paths are available and I now contribute to our congestion and environmental challenges when I really don't want to"* (male parent)
> PC-SSI-15: *"I'm nervous of my cycling ability, I'm frightened cars might hit me, which means I don't cycle in a positive manner, or in a safe position, as I tend to cycle too close to the pavement"* (female parent)

Parents express concerns about their children having to 'go on the roads with cars' due to the lack of cycle lanes on the route to school or roads around school being 'too busy' with traffic,

> PC-SSI-11: *"my main concerns are the safety on the roads, if there is no cycle line, there is a great chance that children will be struck by a car"* (male parent)

In addition, some parents consider it upsetting that there is a lack of cycle ways that allow them to cycle safely with their children,

> PC-FG2: *"It is sad that there are not safe cycle ways for parents and children to be able to enjoy exercising safely now"* (female parent)

Narrow pavements

The width of the pavements are also considered as a safety issue, as it is perceived by parents that narrow pavements force people to walk on the road. In this regard, walking, especially with children and pushchairs is considered 'difficult' if the pavements are too narrow or obstructed by bins or parked cars, etc.,

> PC-SSI-06: *"Walking at the moment, when people park on the pavements, you can't get pass (sic) with a pushchair"* (male parent)
> PC-SSI-17: *"Other problem is cars parked on the pavements most of the time; and the dustbins left on pavements occasionally. I've seen mothers struggling to pass with their children and their pushchairs"* (male parent)

5.2.3 Health and fitness issues

Health and fitness issues include: *'health problems, injuries or age'*, *'require extra physical effort'*, *'not fit to cycle or not knowing how to'*, *'not bothered or too 'lazy'*, and *'uncomfortable and unhealthy'* (Figure 5.4),

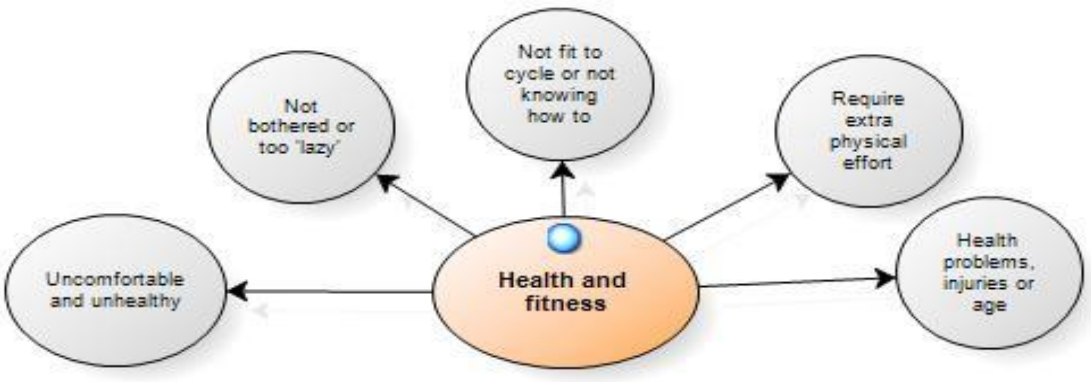


Figure 5.4: Perceptions of health and fitness

Health problems, injuries or age

Children report that previous accidents or having health problems or injuries such as 'broken ankles' or some health and age related problems of their carers stop them from cycling or walking to school,

> CHD-SSI-14: *"I have a bike but I don't use it because I broke my ankle, I haven't done it since"* (girl, aged 12-16)
> CHA-AG4: *"My nan takes me in the car because she can't be bothered to walk. She says she is too old"* (boy, aged 7-11)

Parents and carers reported their health and age as barriers to walking and cycling regularly. Regarding their age, they see themselves 'too old' to cycle' or the 'long term' effects of walking and cycling regularly. Both their health condition and age are considered to slow them down or tire them whilst walking or cycling,

> PC-SSI-15: *"in the long term, also I have concerns about my knee"* (female parent)

Parents also mention their children's age and ability to cope with walking and cycling long distances i.e., younger children not being able to walk or cycle,

Require extra physical effort

Children perceive walking and cycling as 'tiring' activities that require more physical effort than being driven and also because of ' having loads to carry' to school,

> CHA-AG3: *"I might get tired before school"* (girl, aged 7-11)
> CHA-AG3: *"Yeah. Cos' I've got loads of ...carry ... to school"* (girl, aged 7-11)

Parents expressed their concerns for walking or cycling with a number of children of different ages and abilities whilst carrying 'stuff' such as shopping, and still having to have 'free hands' in order to handle younger children,

> PC-SSI-13: *"when you have got little children you need to have hands free as well. So it's definitely easier to get your children and your shopping in the car"* (female parent)

Regarding health, parents express some concern about aggravating their health related problems with 'having too much to carry while walking or cycling,

> PC-SSI-13: *"Walking to school, there is obviously carrying bags, lunch boxes, and my work and I can't really carry a big shopping, because it is not good for me, as I have prolapsed*

disks in my neck, I'm very conscious of that –not to carry too many things- of course" (female parent)

Not fit enough to cycle or not knowing how to

Children think that regarding cycles, not being fit is a barrier to cycling, as it requires a level of physical fitness to cycle. Children also mentioned not being able to ride a bicycle as a barrier to cycling,

CHD-SSI- 11: *"I can't ride a bike myself"* (boy, aged 12-16)

Similarly to children, parents report the 'not knowing how to' as one of the barriers to cycling,

Not bothered or too lazy

Children considered that laziness is a barrier to walking and cycling,

CHD-SSI-13: *"Lots of people are getting a lot lazier nowadays"* (boy, aged 12-16)

Uncomfortable and unhealthy

Walking and cycling is considered to be 'uncomfortable' by children as makes them 'sweat', get 'cold feet' or 'get dirty'. Walking and cycling is also considered 'unhealthy' by children that express fears of 'catching a cold' if doing in regular basis. Parents, on the other hand, report fears for their children's health regarding walking and cycling regularly, especially in extreme cold conditions,

PC-SSI-14: *"Anyway, I do not think I could possibly cycle with my son in winter, as it is too cold and my son is still too young – he is just seven- at that age they get ill easily"* (female parent)

In addition, some parents and carers refer to the negative effects of pollution as an issue for regular walking',

PC-FG2: *"I walk regularly but I get headache from pollution"* (female parent)

5.2.4 Issues with public transport

There was no mention of public transport as a barrier to walking and cycling to school by younger children aged 7-11, but older children aged 12-16 that have the choice to use a combination of active travel modes and public transport to go to school expressed their views about the barriers they face in its use. Parents and carers also expressed their views that the school journey, for most of them, is just a link in the chain of trips during their daily activity unlike their children's journey that finishes at the school gates. Therefore, parents and carers report not having access to suitable public transport as a barrier to reducing their car use to go to workplaces; shops or other needed destinations after the school run. The numerous issues, which make them perceive public transport, and the bus service in particular, as a poor choice if compared to the advantages of a car, were: 'lack of routes and connections', 'unreliable and infrequent', 'inaccessible to cycles, pushchairs, 'slow and expensive' and 'uncomfortable and stressful' (Figure 5.5),

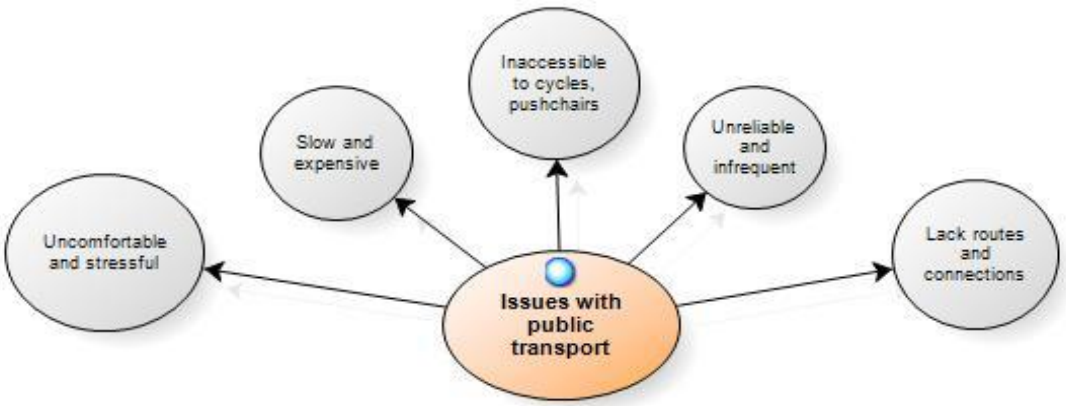


Figure 5.5: Issues with public transport

Lack of routes and connections

Parents mention the lack of direct routes in some areas, inadequate coverage areas, and poor integration to other modes of public transport barriers to active travel,

> PC-FG1*: "basically because there is no routes for where you want to go. There is no route from my son's school to the places I work, for example. I would rather get the bus and be comfortable rather than being stuck in the car but..."* (female parent)

Unreliable and infrequent

Children consider that the bus service is unreliable, as it is often off-schedule,

> CHD-SSI-2: *"the timetables aren't always right, so they are most of the time late"* (boy, aged 12-16)

Parents also mention the bus having 'unsuitable timetables', and being 'infrequent' and sometimes 'unreliable' services as the reason to their preferences for driving,

> PC-FG2*: "I think the bus service in this country is unreliable and people need to be on time at work, that's why many of them would rather drive their own car than be late"* (female parent)

Inaccessible to cycles, pushchairs

Parents and carers mention the difficulty of accessing public transport with pushchairs and scooters due to lack of space, and also the impossibility to access it with bikes due to the strict carriage rules,

> PC-SSI-13: *"You know, that has always been a struggle, taking the buggy with me on public transport, there is only some (sic) much room in public transport for buggies. Not really much room for a bike or a child's bike or a scooter. Even in the tram you can't take your bike..."* (female parent)
> PC-SSI-10: *"Especially if you are going to get a bus somewhere and you couldn't take the bike with you"* (male parent)

Slow and expensive

Children that use public transport perceived it as 'slow' and expensive',

> CHD-SSI-14: *"takes forever to get where you are going because the drive is slow"* (girl, aged 12-16)
> CHD-SSI-2: *"right now tickets and fares are too expensive"* (boy, aged 12-16)

Parents also consider public transport time consuming, taking just as long, if not longer, to reach destinations using a bus as it does using a car, particularly including bus stop waiting time, transfers, and delays. In addition, parents mention the high prices of bus fares that some families with numerous children cannot afford,

> *PC-SSI-14: "It is not practical to have to pay public transport for every single child when comes the time to pay. If public transport for children was cheaper, or even free, that would make a difference"* (female parent)

Uncomfortable and stressful

Parents reported public transport as being 'uncomfortable' in terms of being 'too crowded', 'littered and unclean' and 'noisy'. In addition, the public bus service is considered more stressful and less relaxing than driving. There is the perception that people would rather be alone in their car than be surrounded by undesirable or unruly bus passengers, i.e., youngsters 'smoking', or 'kids causing trouble'. By contrast, some other parents reported the 'stress' caused by the expectations of drivers and other passengers about their children's acceptable behaviour at all times as one of the disadvantages of using public transport, such as buses, i.e.,

> *PC-SSI-13: "the disadvantages of having to use buses, is obviously is that I feel that the children have to behave, in a certain way, that's one thing that can be quite be stressful"* (female parent)

5.2.5 Bad Weather

The groups of children and parents identified bad weather in terms of 'wind'; 'rain'; 'cold'; 'snow', and 'freezing'; or 'icing' conditions equally as a barrier to walking and cycling. The perceptions of bad weather included: *'dangerous'*, *'struggle'* and *'inconvenient and unpleasant'* (Figure 5.6).

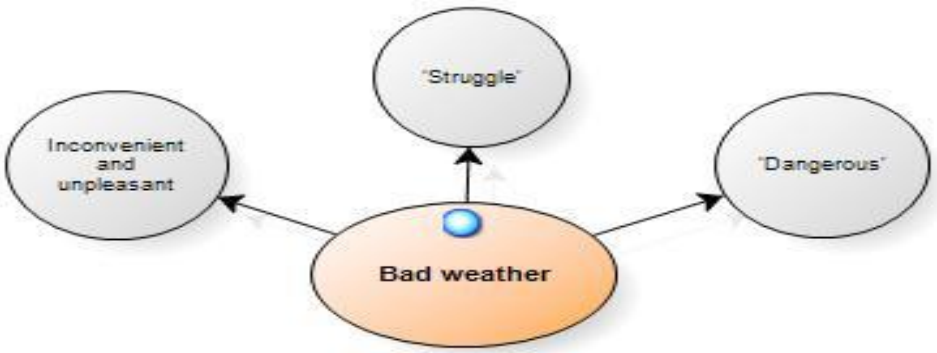


Figure 5.6: Perceptions of bad weather

Inconvenient and unpleasant

Children report the inconvenience of 'getting wet' before school and 'having to change' at school. In addition, they mention their dislike of having to carry and wear waterproof gear such as rain boots, jackets, umbrellas, gloves and spare sets of clothing. Children report that bad weather, especially in winter, hinders activities such as 'cycle clubs' at schools.

Parents and carers also consider that the ‘unpleasant’ weather hinder them from walking or cycling,

> CHA-AG3*: “the weather makes me worried as I don’t want to get wet before* school” (girl, aged 7-11)
> CHA-AG2: *“on Tuesdays during term time we used to cycle for one hour in the morning around school, I don’t think we are doing it at the moment because it’s winter”* (boy, aged 7-11)

Struggle

Parents viewed changing weather as a ‘struggle’ for getting out with many and/or younger children. Exposing younger children to bad weather makes some people from this group feel guilty. Therefore, the convenience of driving, especially when the weather is bad, was evident,

> *PC-SS1-14: “If it is raining, or if it is too cold, like in winter, it is rather a bit of a torture to walk to school, when it is still dark”* (female parent)

Dangerous

In addition, parents report their fears for themselves and their children of ‘slips’ and falls’ in snowy and icy conditions. Cycling is also considered ‘dangerous’ if is too *windy,*

> *PC-SSI-11: “probably is difficult if the weather is not good, especially in the winter when it is snowing or if there are icy roads, it is difficult, because you slip and fall”* (male parent)

5.2.6 Negative perceptions of cycling

Negative perceptions about cycling include ‘unattractive and odd’, ‘slower’, ‘cycle is better for men’, ‘not practical to move children’ around, ‘issues with cycle maintenance’, ‘not an aspirational purchase’, and ‘not a transport tool’ (Figure 5.6),

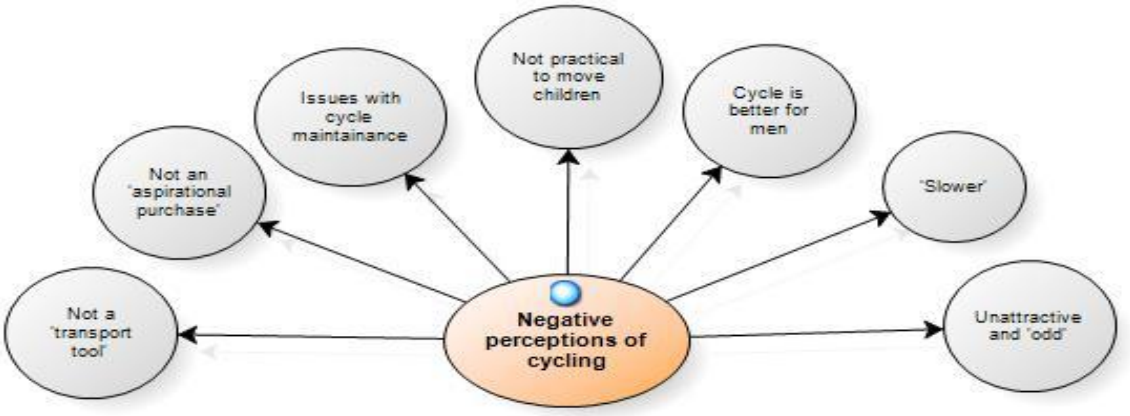


Figure 5.6: Negative perceptions of cycling

Unattractive and odd

There seems to be a lack of appeal for cycling, as some children report that they do not cycle because they simply don't 'want' to do it or they don't 'like' it. Cycling is perceived by children as 'not cool' or 'fashionable' and by parents and carers as an 'odd' activity that is 'still' not accepted within their culture and more like a sign of eccentricity that can be the focus of criticism by peers,

> CHA-AG4*: "No, I don't want to. I wouldn't like it"* (boy, aged 7-11).
> CHD-SSI-20: *"I don't have a bike, is not cool, not fashion to have a bike"* (boy, aged 12-16)
> PC-SSI-12: *"Culturally, bikes may be still frown upon; it is not an achievement to ride on a bike. It is seen as an odd thing to do still within our culture… so; the infrastructure is a part of it, and the peer group, the way as people still see cycling as an odd thing. It wouldn't be seen as a positive"* (male parent)

Slower

Children, parents and carers alike consider that in terms of transport, cycling is slower than travelling by car,

> PC-SSI-12: *"Cycling, maybe requires a little more patience to get from one place to another, it is not always the fastest way or the easiest way"* (male parent)
> CHD-SSI-14: *"It takes forever to get where you are going because the [cycle] ride is slow"* (girl, aged 12-16)

Cycling is better for men

Women consider that cycling is more dangerous for women than for men, and that men are more confident and perform better whilst cycling, as they are stronger than women,

especially for cycling up hills. In addition, women report concern for their looks (i.e., ruining their hair style, looking good and wanting to wear high heels). In this regard, women consider than men cycle more because they 'care less' about looks. Women also confess feelings of 'shame' and fears to criticism by peers if they are seen cycling etc.,

> PC-FG2: *"I think men feel more confident to use the cycle"* (female parent)
> PC-SSI-15: *"I also have a friend that drops her child at school and for that she needs to catch two buses and walk but she wouldn't like to cycle instead because she feels that she would look bad in a cycle, she feels shame"* (female parent)
> PC-FG2*: "they are not so vain [men]; they care less about how they look"* (female parent)

Not practical to move children

Having to move a number of children or a mix of older, younger children and babies around is also one of the barriers to walking and cycling, as some parents feel that in this case cycling is not practical,

> PC-SSI-10: *"We can cycle but I mean, a young baby, you have to have some form of transport because we need to go to places and do things, and with all the greatest bikes and the best equipment, you are always going to struggle with babies"* (male parent)

Issues with cycle maintenance

The issue of bike maintenance (having difficulties sorting punctures on bikes, etc.,) is also seen as a barrier to cycling by children and parents,

> *CHB-AG5: "if your cycle gets punctured!"* (boy, aged 12-16)
> PC-SSI-13: *"I can ride a bike but I don't know how to do …even basic maintenance!"* (female parent)

Not an aspirational purchase

Parents report that a cycle, unlike a car, is 'not an aspirational purchase' or a sign of 'achievement',

> PC-SSI-10: *"bikes are the most practical things in the world, but still not an aspirational purchase. It is integral to most cultures that if you have a Rolls Royce people would think you made it. If you had a 10,000-pound bike people would think you are strange. The thing that people would say is that you can buy a car with that"* (male parent)

Not a transport tool

Cycling is not always seen as a tool for transport to school or other places by children and parents, and therefore, its use has often been relegated for after school and weekends and also limited to areas 'free' of cars 'around home' or in parks,

> CHA-AG3: *"I ride my bike all the time but never to school"* (boy, aged 12-16)
> PC-FG2: *"my son has a bike, which we use, in areas where there are no cars around"* (female parent)
> PC-FG2: *"yes, both my children have their own bikes but they cycle in parks and around our home. Sometimes in summer time I cycle to my children's school for fun with them"* (female parent)

5.2.7 Lack of time

The *'family's busy schedules'*, the *'tight and inflexible work schedules'*, and *'running or waking up late'* feature as barriers to walking or cycling equally on both groups of children and parents and carers (Figure 5.7),

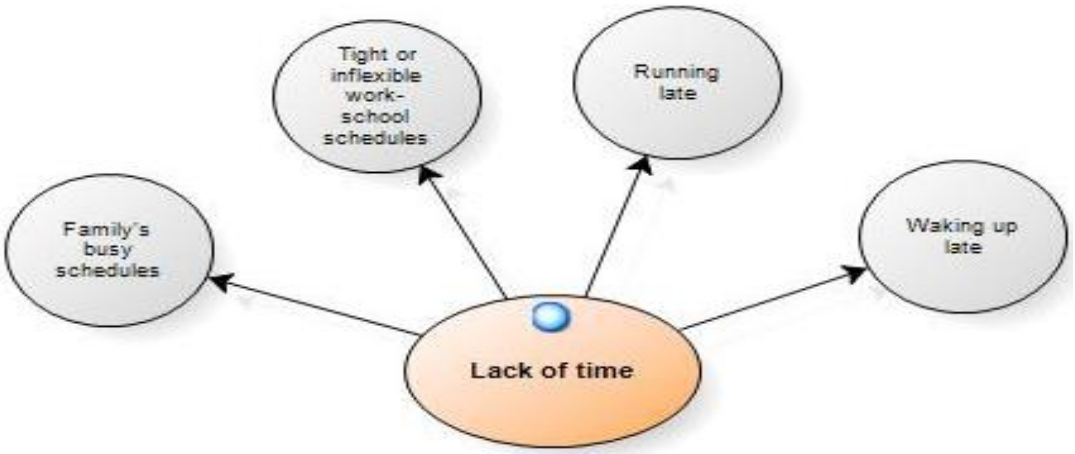


Figure 5.7: Perceptions of lack of time

Family's busy schedules

Some children reported being dependent on their parent's or carers' work schedules as the reason for not walking or cycling to school, and several also highlighted that when other children in their family had to be driven to different schools or activities, there was no longer time for their parents or carers to walk or cycle with them,

CHA-AG4: *"Sometimes I walk and sometimes I go in the car. In the car because my mum has to go work, because she drop us off and then she has to go to work. Because on Monday she works, she has to be there by 8… no, wait, I think is 9"* (boy, aged 7-11)

Similarly, some people from the parents and carers group refer to their busy schedules during the working week as the reason for using a car, which prevent them from walking and cycling with their children or allowing them to walk or cycle by themselves,

PC-SSI-14: *"as a fitness instructor, I work in different locations and I'm always rushing between sessions"* (female parent)
PC-SSI-15: *"my husband also has to go to work, and as we have only one car, I drive him to his work after the school run and I also pick him up from his work, which is a bit far, near the city centre"* (female parent)

Tight or inflexible work - school schedules

Parents report issues with work and school care for not allowing them, their partners or their children to opt for more active travel modes. With regard to work, parents and carers manifest the tight and inflexible schedules, especially evident to parents or carers working full-time, in shifts, or working far from home or school and the difficulty of finding a part - time or more flexible work that allows them more time to walk or cycle,

PC-SSI-18: *"When I'm working, as it is far, I always drive my car and take my two children with me. My husband occasionally takes the children to school but he also struggles with time because he has to be at the office by 9am"* (female parent)
PC-SSI-15: *"We both work so walking to school every day is impossible. My husband's work is not too flexible and requires him to work long hours"* (female parent)
PC-SSI-20: *'I would like to get a part time job and that has been very difficult to get in my area of work"* (female parent)

Regarding school, e.g., the opening times of 'breakfast club' and 'after care facilities' are 'not sufficient' and were mentioned by parents as barriers that do not allow them to opt for active travel modes. On the other hand, some parents expressed their concerns of having to leave children (especially younger ones) in care for longer hours as a barrier to active travel,

PC-SSI-14: *"I can't cycle, I would not have enough time to go to my first work session from the morning, as the breakfast club opens just until about 8am and I need to be working by 8:30 and it takes me about 25 minutes driving, I think by cycle it would take me at least 45 minutes"* (female parent)
PC-SSI-14: *"the problem is the time, because I work two days a week and I go to school the other three. I even have to leave my son very early in the breakfast club a couple of days a*

week. Even if the breakfast club starts running earlier, it wouldn't be fair with children to have to leave them there for long hours before school starts" (female parent)

Running late – waking up late

Children reported not having enough time in the morning as they wake up late. They considered that walking or cycling to school would take them longer than to be driven, which in turn would require them to get up earlier in the mornings. Parents also perceived that getting ready to walk or cycle takes more time, as they need to wear appropriate clothing,

CHA-AG1: *"because I need to get there quicker. I always wake up late"* (boy, aged 7-11)
PC-SSI-18: *"you and your children need appropriate clothing but that always adds more time getting out of the door"* (female parent)

5.2.8 Work and other destinations

Work and other destinations include 'dropping off other children at nursery or child minders', 'going to work or to study', and 'going to other destinations such as 'shops, doctor or to the gym' (Figure 5.8),

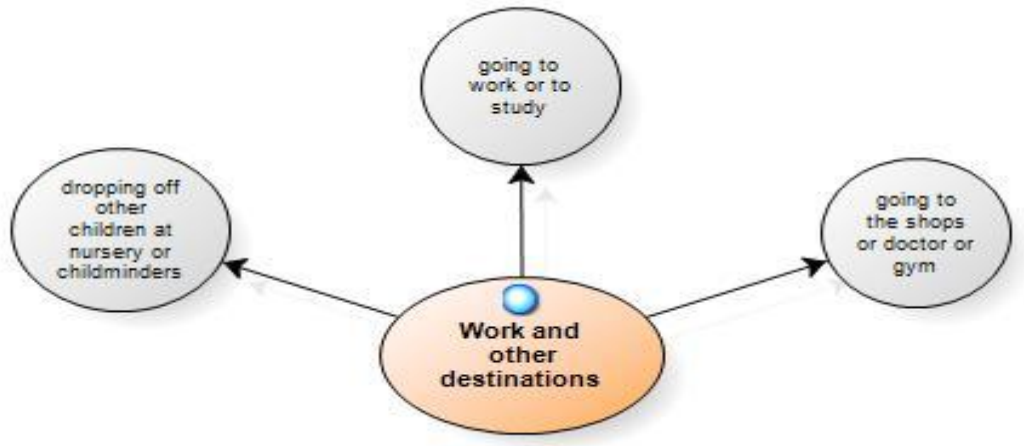


Figure 5.8: Work and other destinations

Some of the participants of the group of parents and carers report having other permanent commitments around the school run like having to *drop off other children at nursery or child minders*, etc.,

CHA-AG3: *"I can't ever walk because we have to take my little brother to nursery on the way to school so we always have to go in the car"* (girl, aged 7-11)

Children report that often their parents or careers need to go to work or to study after driving children to school, so this hinders them from walking and cycling.

As the final destination is not only the school, but also other venues such as the gym, the shops, the doctor, etc parents also expressed that it was more convenient to drive their children to school when they are on their way to such places, even if they lived within walkable distance,

> PC-SSI-18: *"When I'm working I always drive my car and I take my two children with me, as the schools are very close, basically next to each other"* (female parent)

5.2.9 Long distances and lack of direct routes

A long distance and lack of direct routes including 'living far away from school and work', 'having to walk for too long', 'more chances of encountering busy roads', 'difficult terrain', 'blocked shortcuts' and 'lack of bridges and paths' are the barriers to walking and cycling to school (Figure 5.9),

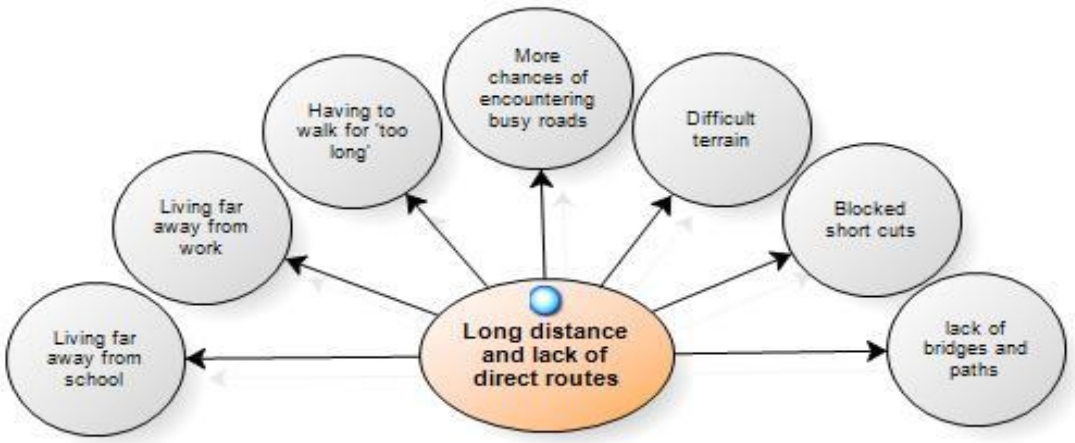


Figure 5.9: Long distance and lack of direct routes

Living far away from 'school' or 'work' and 'having to walk for too long'

Living too far away from school (in the case of children) and from work or other places (in case of the parents and carers) was a reported barrier to walking and cycling to school by

parents and carers alike. However, the concept of distance is relative, i.e., for children, 'having to walk for too long' (15-20 minutes' walk) in comparison with a 5 minute drive was a perceived barrier. Similarly, some parents considered a walk of 'about half an hour' too long compared with a short drive of 'about 8 minutes'. However, some parents of this group felt that the perception of a 'long distance' was in many cases just an excuse to opt for transporting children by car, as they considered that schools are 'never that far away',

> PC-SSI-13: *"I drive my daughter everyday to school because I live quite far from her school, it takes about 8 minutes. Walking it takes us about half an hour"* (female parent)
> PC-SSI-10: *"Schools are never that far away. There is ridiculous sort of fallacy that most people live within a mile of school and there is no reason to drive, it is a 10-minute walk. But still they drive them [their children] to school, because it keeps them safe, or warm"* (male parent)

More chances of encountering busy roads

Parents and carers seemed worried about the longer distances that children would have to cover if allowed to walk or cycle on their own, as they simply assumed that the longer the distance, there would be more chances of children encountering busy roads and therefore, having accidents,

> PC-SSI-18: *"my children have never ever walked to school by themselves, just with me; I think that walking all that distance and having to cross all those roads with lots of cars or to cross the canal...is not safe for them to do it on their own"* (female parent)

'Difficult terrain', 'blocked shortcuts' and 'lack of bridges and paths'

In some cases, despite people living physically within a mile of school, other barriers such as a difficult terrain and not having a direct route further complicated the distance barrier, making walking take much longer and being more difficult for diverse reasons such as lack of direct paths or bridges; and blocked, fenced or badly maintained short cut routes such as alleyways,

> PC-FG2: *"we live very near school, it would be a short journey if we had a nice path to walk or cycle there, but instead, we have to go around busy roads with traffic because there isn't a direct path to school from our neighbourhood"* (female parent)
> CHA-AG4: *"sometimes is annoying because if the fences on the alleyways around the school are closed I have to go the long way"* (boy, aged 7-11)

5.2.10 Cost and availability

Cost and availability includes ‘the cost of a bike’, ‘not owing or having access to a bike’ and ‘not being able to use an available bike’ (Figure 5.10),

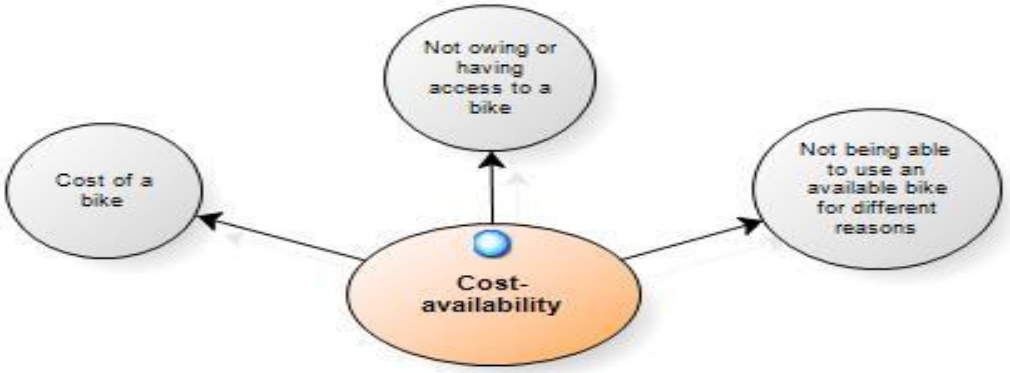


Figure 5.10: Cost and availability

The cost of a bike

The cost of a bike is an issue for children. They made reference to the costs of owning a bike, such as buying a bike and ‘paying to park your bike’. Parents and carers do not mention the cost of purchasing a bike as a barrier, only not owning one.

Not owning or having access to a bike

Not owning or having access to a cycle are reported as barriers to cycling by children and parents and carers equally,

> CHD-SSI-9: *“I would go around on a bike if I had one but I don’t”*

Not being able to use an available bike for different reasons

Children report issues with the access to cycles at home, or at school because either parents or teachers do not allow them to use them for reasons such as safety or bad weather,

> CHB-AG5: *“my dad doesn’t let me to take the bike to school because someone can take it”* (boy, aged 12-16)
> CHA-AG2: *“we have lots of cycles at school not being used”* (boy, aged 7-11)

5.2.11 Lack of storage and facilities

Issues with storage and facilities include the 'lack' of them *'at home and school'*, *'lack of facilities at destinations', 'lack of facilities for cycle maintenance'*, and *'issues with the way that the storage and facilities are provided'* (Figure 5.11),

Figure 5.11: Lack of storage and facilities

Lack of storage space at home and school

Children report the lack of storage: space for coats, helmets, scooters, roller skates and bikes at home and school as barriers to active travel. Parents and carers also report the lack of facilities to store cycles at schools being a barrier to allowing their children to cycle to school. In addition, they report not having suitable cycle storage at their houses or flats (i.e. sheds, garages, etc.); and having to store theirs and their children's bikes in the hallways or living rooms,

> PC-SSI-14*: "I could still walk or I better, I could cycle, but at the moment, I live in a block of flats and although it has a private car park, it has no place to keep bikes locked up and safe. Probably if there was a safe place or a shed to keep the bikes I would consider it"* (female parent)
> PC-SSI-11: *"at home we keep the cycle in the living room and I will bring it straight back home after I drop the kids at school, in the days my son cycles to school as I don't think that there is a place to store the bikes at school, or at least I haven't noticed it"* (male parent)

Lack of facilities (parking, lockers, changing rooms and showers) at work or other destinations

The lack of secure cycle parking, storage space for coats, helmets, cycles and facilities such as showers or changing rooms at the diverse destinations after the school run discourages some people from the group of parents and carers from cycling,

> PC-FG2: *"although at work they are trying to motivate people to cycle more, the only problem is they do not provide showers, and our building is on top of a hill, so everybody arrives sweaty and tired"* (female parent)
> PC-SSI-14: *"and the bikes, when you do your shopping with your bikes you need a safe place to lock the bike up; but where do you lock your bike up?"* (female parent)

Lack of facilities for cycle maintenance

The lack of facilities in terms of where to service bikes for reasonable prices and being located relatively nearby where people live seems evident,

> PC-SSI-13: *"some of the people I know who ride bikes a lot could probably rebuild the whole thing themselves. Me? I'd have to have someone else repair it. Is there a 'tyre-shop' near? I've never seen one!"* (female parent)
> PC-SSI-12: *"over the years I've visited several different bike shops to attempt to get repairs done and many of these fall wide of the mark and don't seem to interested in your business, only your money"* (male parent)

Issues with the way storage and facilities are provided

Children expressed issues with the way school provides cycle storage, which may be secure in some cases but is not accessible by them at the time required,

> CHD-SSI-21: *"because I'm involved in a lot of clubs and activities after school and they close the front gates at 3:30 and I always leave school at 4. And usually reception is closed as well, so there is no way to get my bike out and it just will be trapped there"* (girl, aged 12-16)

5.2.12 Positive perceptions about car use

Positive perceptions about car use include *'having access to a car and relying on it for transport', 'safer, faster, comfortable, independent and reliable', 'cool and symbol of status and achievement', 'convenient and practical for families with children', 'facilitates daily life', 'better and cheaper than other modes of transport'* (Figure 5.12),

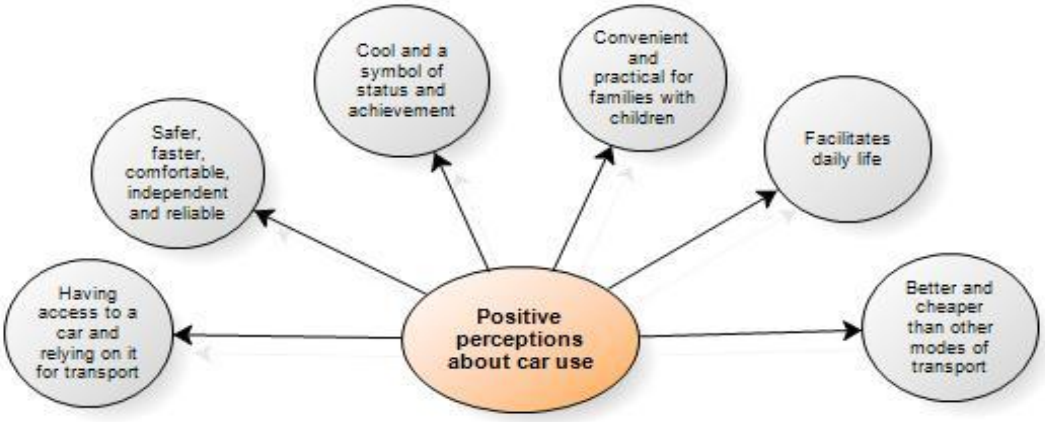


Figure 5.12: Positive perceptions about car use

Having access to a car and relying on it for transport

Parents and carers expressed that having access to a car and relying on a car for transport purposes is also a barrier to walking and cycling, as it becomes part of a routine,

> PC-SSI-16: *"I think because we have the car and we make use of the car mostly. Also because we are used to the car, is sort of a routine"* (female parent)

Safer, faster, comfortable, independent and reliable

Children in this group perceived that travelling by car is 'safer', 'faster' and more 'comfortable' than walking and cycling,

> CHA-AG6: *"mainly in a car, because we live quite far and there is lots of roads to cross, is faster and we have to be there on time"*
> CHA-AG1: *"I like going in the car because it's nice and warm and you can sit down in those chairs and you could listen to music"*

Some parents and carers report that driving a car makes them feel 'more secure', 'free to get around' and more 'independent'. In addition, they report that in some of the cases having a car is part of their current job, (i.e., visiting clients) and in other cases it has also 'expanded' their opportunities to find jobs that require travelling and covering wider areas; which would be practically impossible by public transport,

> PC-FG1: *"makes you feel free to get around"* (female parent)
> PC-FG1: *"independency – you use it whenever you like"* (female parent)
> PC-SSI-18: *"my husband's job requires him to visit many clients, he has to drive his car; before, he had a company car but he decided he wanted his own car, so he bought one"* (female parent)

PC-SSI-14: *"If I'm perfectly honest, since I got the car my life has changed for better as it made me able to expand my area of work. I was very limited before, and the transport didn't help me at all. I couldn't rely in some routes where buses pass every half an hour"* (female parent)

Cool and a symbol of status and achievement

Children consider cars 'cool', and according to parents and carers, having a car is considered a 'symbol of status' and also of 'personal achievement',

CHA-AG1: *"oh yeah, it's so cool a car!"* (boy, aged 7-11)
PC-SSI-10: *"unfortunately people relate wealth to cars, the more cars you've got, the better car you've got. It is a status symbol. If you look to anybody from a third world country, the first thing they achieve it will be a fancy car and they would send the picture of themselves with it to say "look, I have made it"* (male parent)
PC-SSI-15: *"a car gives you status. People think that you cycle because you don't have enough money to buy a car"* (female parent)

Convenient and practical for families with children

Parents expressed that it was more convenient, in terms of time, to drive children when they are on their way to work or to run other errands, or if the family is running late in the mornings. This is particularly evident especially in families with numerous children of different ages or attending different schools or activities or in the case of single parents. In such cases car use seems more practical because it helps them be 'time wise' and presents them with the opportunities to move their children around easily, to transport more 'personal belongings' and to travel and cover longer distances to work or other places,

PC-SSI-16: *"What we do is we all get together in our car in the mornings and my husband drives us and drops us one by one, he drops the children to school first and then he drops me"* (female parent)
PC-FG1*: "I have three kids, so I always want to go to school, work, home and other places quicker so I rather use the car. You can take around your kids, your personal belongings, your luggage and it is not going to be a problem to carry all. You can be as messy as you want inside your car!"* (female parent)
PC-SSI-14: *"for single parents like me, that are always trying to find the fastest and most convenient way to go to places, the car is the technology that works the best, unfortunately, although is not the most healthy or ecological but it is the most easier and convenient"* (female parent)

Facilitates daily life

Having the disposal of their own car, being 'available as and when needed' is seen by some of them as a positive feature that facilitates their daily life, in terms of time to transport them to school, work, shopping, leisure, etc, or in case of emergencies,

> PC-SSI-20: *"positive things are that you can leave whenever is convenient for you and you can be there on time and you can use your time more effectively"* (female parent)
> PC-FG2: *"I go by car everywhere because I have a son and I also have to work, so, I have little time"* (female parent)
> PC-FG1: *"makes shopping so much easier"* (female parent)
> PC-FG2: *"a car is always needed in case of emergencies"* (female parent)

Better and cheaper than other modes of transport

Parents and carers consider that a car use is safer, efficient, faster and more comfortable than using public transport. They also said that a car can take them further away to places than public transport,

> PC-FG1: *"when you are in your own car you feel safe but when you are in public transport you never know what is going to happen with all the things that happen with safety. Your safety and the safety of your kids is important"* (female parent)
> PC-FG2: *"public transport between Altringham and Stockport takes ages, that's why I better drive my car. It is also more comfortable"* (female parent)
> PC-FG1: *"[a car] can take you to places where bus can't"* (female parent)

In addition, parents and carers perceive that although the cost of running a car is high, it is in some circumstances cheaper and more convenient than having to pay for public transport, i.e., if a number of trips are required on a daily basis to different places or if there are numerous members in a family,

> PC-SSI-20: *"I need the car to be able to do it, as bus and train timetables are not suitable for me. Plus is cheaper than taking more than one means of transport"* (female parent)

5.3 Graphic synthesis of barriers to active travel to school

A graphic synthesis of the barriers to active travel to school that include the 11 themes and 70 sub themes as identified by children and parents is shown in Figure 5.13.

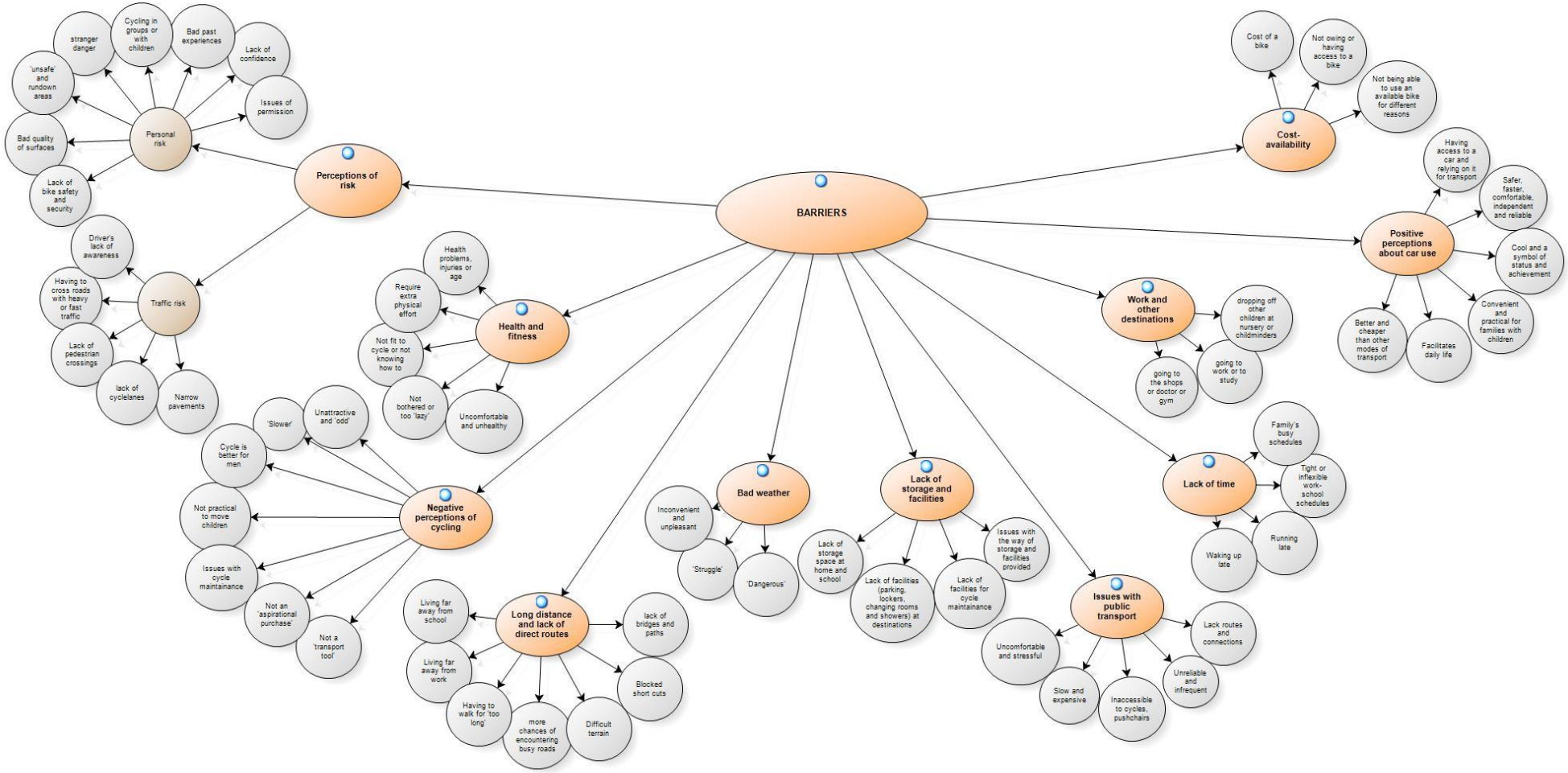


Figure 5.13: Graphic synthesis of the barriers to active travel to school as identified by children and parents

5.4 Analysis and variation of the emergent themes as barriers

As mentioned previously, although the qualitative survey research method downplays the use of statistical analysis, it is useful to provide some frequencies of references to illustrate the most common perceived themes by children and parents. As can be seen in *Figure* 5.14 showing a table and pie chart with frequency of references, the most common themes resulted from the analysis of the data and emerging as barriers were in order of importance: *'perceptions of risk'*; '*issues and benefits of health and fitness'; 'issues with public transport'; 'bad weather' and 'negative perceptions of cycling'.* To a lesser extent, *'time and schedule issues'; 'work and other destinations'; 'long distance and lack of direct routes', 'costs and availability issues', 'lack of storage and facilities' and 'positive perceptions of car use' also* as barriers,

Barriers	42	263
Name	Sources	Reference
Perceptions of risk (personal and traffic)	28	136
Health and fitness issues	22	60
Issues with public transport	10	49
Bad weather	20	48
Negative perceptions of cycling	24	42
Time and schedule issues	19	38
Work and other destinations	18	34
Long distance and lack of direct routes	17	30
Cost and availability issues	8	14
Lack of storage and facilities	11	13
Positive perceptions about car use	8	12

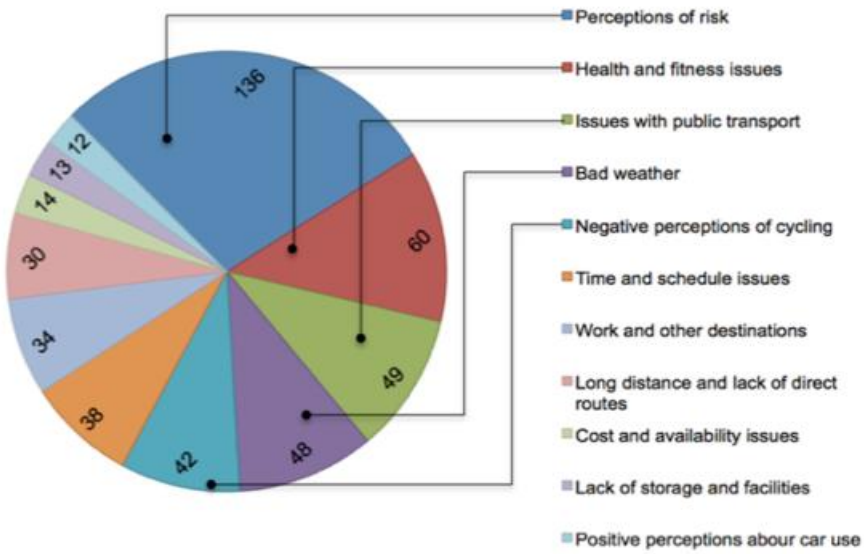


Figure 5.14: Table and pie chart with frequency of references showing the themes emerged as **barriers** to active travel to school

5.4.1 Analysis of the barriers by group

Further analysis based on the frequency of references showed that the level of importance of the thematic ideas emerging as barriers also varied between the groups of parents and children, for example, for both groups of parents and children equally, the most important barrier in the first place is the *'perception of risk'*, however, whilst these seem strongly important for the group of parents, it doesn't appear too important for the group of children. *'Public transport'* appears for the group of parents as the second most important barriers whilst the *'negative perceptions of cycling'* are for the group of children. The third most important barrier for both groups of parents and children are the *'health and fitness'* issues. *'Bad weather'* is the fourth most important barrier for the group of parents, whilst in the case of children, *the 'long distance and lack of direct routes'* followed closely with their parents' *'issues with work and other destinations'* after the school run (Table 5.1),

Table 5.1: Rank order table showing the most important barriers by group

Rank Order	CHILDREN		Rank Order	PARENTS	
1	*Perceptions of risk (personal and traffic)*	*31*	1	*Perceptions of risk (personal and traffic)*	*87*
2	*Negative perceptions of cycling*	*22*	2	*Issues with public transport*	*48*
3	*Health and fitness issues*	*13*	3	*Health and fitness issues*	*37*
4	*Long distance and lack of direct routes*	*11*	4	*Bad weather*	*35*
5	*Issues with work and other destinations*	*11*	5	*Negative perceptions of cycling/ Time and schedule issues*	*23*

5.4.2 Analysis of the barriers by age group

There were also variations between the groups of children by age, for example, whilst for the group aged 7 to 11 the most important barrier in first place is the *'perception of risk'*, for the group of children aged 12 to 16 the most important barriers are both: the *'negative perceptions'* of active travel modes and issues with *'health and fitness'* (Table 5.2),

Table 5.2: Rank order table showing the most important barriers by age group

Rank Order	CHILDREN AGED 07-11		Rank Order	CHILDREN AGED 12-16	
1	*Perceptions of risk (personal and traffic)*	*27*	1	*Negative perceptions of cycling*	*13*
2	*Long distance and lack of direct routes*	*10*	2	*Health and fitness issues*	*10*
3	*Health and fitness issues*	*8*	3	*Perceptions of risk (personal and traffic)*	*4*
4	*Issues with work and other destinations*	*7*	4	*Issues with work and other destinations*	*4*
5	*Negative perceptions of cycling*	*6*	5	-	-

5.4.3 Analysis of the barriers by gender

Barriers to children by gender

Further analysis on the frequency of references based on gender found that for both female and male children, the most important barrier is *'perception of risk'*. However, the second most important barrier for female children is the *'negative perceptions of cycling'*, whilst for male children it is the *'long distance and lack of direct routes'.* For both female and male children the third most important barrier is *'issues with health and fitness'* (Table 5.3),

Table 5.3: Rank order table showing the most important barriers to children by gender

Rank Order	FEMALE CHILDREN		Rank Order	MALE CHILDREN	
1	*Perceptions of risk (personal and traffic)*	*26*	1	*Perceptions of risk (personal and traffic)*	*27*
2	*Negative perceptions of cycling*	*17*	2	*Long distance and lack of direct routes*	*10*
3	*Health and fitness issues*	*11*	3	*Health and fitness issues*	*9*
4	*Issues with work and other destinations*	*10*	4	*Issues with work and other destinations*	*6*
5	*Time and schedule issues/ Long distance and lack of direct routes*	*9*	5	*Time and schedule issues*	*5*

Barriers to parents by gender

In the case of parents, for females, the most important barrier is also *'perceptions of risk'*, whilst for males it is the *'negative perceptions of cycling'*. In the second place the barriers for female parents are *'issues with public transport'*, whilst for male parents is *'perceptions of risk'.* The most important barrier in third place are different for both female and male parents, because whilst for females it is the *'health and fitness' issue, and for males it is 'bad weather' and 'work and other destinations' equally* (Table 5.4),

Table 5.4: Rank order table showing the most important barriers to parents by gender

Rank Order	FEMALE PARENTS		Rank Order	MALE PARENTS	
1	*Perceptions of risk (personal and traffic)*	*78*	1	*Negative perceptions of cycling*	*11*
2	*Issues with public transport*	*47*	2	*Perceptions of risk (personal and traffic)*	*9*
3	*Health and fitness issues*	*34*	3	*Health and fitness issues*	*7*
4	*Bad weather*	*30*	4	*Bad weather/ Issues with work and other destinations*	*5*
5	*Time and schedule issues*	*20*	5	*Time and schedule issues*	*5*

5.4.4 Analysis of the barriers by travel mode

According to their reported travel mode, parents and children were split in groups of walkers, cyclists, car users and bus users. As can be seen in Figure 5.19, from the frequency of references it was found that all the groups reported *'perceptions of risk'* as the main barrier to active travel in the first place without exception. However, the group of cyclists reported in addition the *'negative perception'* of cycling in this place. In second place, the issues with 'public transport were reported as barriers by most groups with the exception of the group of cyclists that reported *'lack of time'* as the main barrier to active travel. In third place, the groups of walkers, cyclists and bus users reported *'bad weather'*; whilst car users reported issues with their *'health and lack of 'fitness'* as the barrier to active travel. In addition, for the group of cyclists, the *'lack of storage and facilities'* is also a barrier at this level (Table 5.5),

Table 5.5: Rank order table showing the most important barriers by travel mode

Rank Order	WALKERS		Rank Order	CYCLISTS		Rank Order	CAR USERS		Rank Order	BUS USERS	
1	*Perceptions of risk (personal and traffic)*	*49*	1	*Perceptions of risk (personal and traffic)/ Negative perceptions of cycling*	*11*	1	*Perceptions of risk (personal and traffic)*	*93*	1	*Perceptions of risk (personal and traffic)*	*55*
2	*Issues with public transport*	*36*	2	*Time and schedule issues*	*9*	2	*Issues with public transport*	*41*	2	*Issues with public transport*	*36*
3	*Bad weather*	*18*	3	*Bad weather/ Lack of storage and facilities*	*5*	3	*Health and fitness issues*	*36*	3	*Bad weather*	*22*
4	*Negative perceptions of cycling*	*17*	4	-	-	4	*Bad weather*	*28*	4	*Health and fitness issues*	*19*
5	*Issues with work and other destinations*	*16*	5	-	-	5	*Time and schedule issues*	*22*	5	*Time and schedule issues/ Negative perceptions of cycling*	*12*

5.5 Summary

This research investigated the perceptions of children aged 7-16 and parents aged 20-60 from families living in urban contexts about active travel to and from school. It sought to elicit their views associated with perceived barriers to school travel and the factors influencing their current travel behaviour. The results showed that the key *barriers* could be categorised into 11 themes, which included a total of 70 sub themes. According to both children and parents participating in this research, the most common barriers to active travel to school were *'perceptions of risk', 'health and fitness issues'; 'issues with public transport'; 'bad weather'; and 'negative perceptions of cycling'*. To a lesser extent, *'time and schedules'; 'issues with work and other destinations'; 'long distance and lack of direct routes'; 'cost and availability'; 'lack of storage and facilities' and 'the positive perceptions of car use'* also prevented children and parents from walking and cycling to school.

- '*Perceptions of risk'* comprises both personal and traffic risk. The first includes issues of permission, lack of confidence, bad past experiences in relation to cycling, the danger of cycling in groups or with children, stranger danger, bad quality of surfaces, unsafe and rundown areas and lack of bike safety and security. The second includes driver's lack of awareness, having to cross busy roads, lack of cycle lanes, narrow pavements, lack of pedestrian crossings, and the presence of heavy or fast traffic.

- *'Health and fitness issues'* include 'health problems, injuries or age'; the perception that such modes 'require extra physical effort'; 'not being fit enough to cycle or not knowing how to' cycle; 'not bothered or too lazy' to walk or cycle; and the perception that such modes are 'uncomfortable and even unhealthy'.

- *'Issues with public transport'* refers particularly to bus services and encompasses the 'lack of routes and connections'; the service being 'unreliable and infrequent'; 'inaccessible to cycles and pushchairs'; 'slow and expensive'; 'uncomfortable and stressful.'

- *'Bad weather'* comprises 'inconvenient and unpleasant' weather; the view that changing weather is a 'struggle' for families especially; and extreme weather considered even 'dangerous'.

- *'Negative perceptions of cycling'* includes the perception that cycling is 'unattractive and odd'; 'slower' than other modes. Females' perceptions are that 'cycling is better for men'; that cycling is 'not practical to move children'; there are 'issues with cycle maintenance' and that a cycle is 'not an aspirational purchase' or a 'transport tool'.

- *'Time and schedule issues'* comprises the family's busy schedules'; the 'tight or inflexible work and school schedules'; and 'running late or waking up late'.

- *'Issues with work and other destinations'* refer to further destinations that become permanent commitments around the school run.

- *'Long distance and lack of direct routes'* include 'living far away from school or work' and 'having to walk for too long'; 'more chances of encountering busy roads'; 'difficult terrain; blocked shortcuts and lack of bridges and paths'.

- *'Cost and availability'* encompasses the 'cost of a bike'; 'not owing or having access to a bike'; and 'not being able to use an available bike for different reasons'.

- *'Lack of storage and facilities'* refers to 'lack of storage space at home and school'; lack of facilities (parking, lockers, changing rooms and showers) at work or other destinations; lack of facilities for cycle maintenance' and 'issues with the way storage and facilities are provided'.

- *'The positive perceptions of car use'* include 'having access to a car and relying on it for transport'; the perception that car use is 'safer, faster, more comfortable, independent and reliable'; 'cool and a symbol of status and achievement'; 'convenient and practical for families with children'; 'facilitates daily life'; and is 'better and cheaper than other modes of transport'.

In order to illustrate the perceived barriers to active travel to school, a graphic synthesis of the thematic ideas on what children and parents perceive to be the most important from their point of view, was presented in this chapter. In addition, an analysis based on the frequency of references showed that the level of importance of the thematic ideas emerged as barriers varied between the groups of parents and children and also by age, gender and travel mode groups. It was found that the *'perceptions of risk'* are the most important barriers to active travel to school equally in the groups of children and parents regardless of age, gender or travel mode, although in proportion it seems more important for the group of parents and for the younger female children aged 7-11. On the other hand, the *'negative perceptions of cycling'* are the second most important barriers for the group of children, although in proportion it seems more important for the group of older children aged 12-16. In similar proportions, the '*issues of health and fitness'* are also significant barriers to active travel to school for both groups of children and parents. Further perceived barriers are different for groups of children and parents and include '*issues with public transport'; and 'bad weather".* To a lesser extent*, 'time and schedule issues'; 'work and other destinations'; 'long distance and lack of direct routes', 'costs and availability issues', 'lack of storage and facilities' and 'positive perceptions of car use'* are also considered barriers to active travel to school.

CHAPTER 6 RESULTS: EMERGENT THEMES AS ENABLERS TO ACTIVE TRAVEL TO SCHOOL

6.1 Introduction

As stated in the introductory chapter, one of the objectives of this PhD research was to investigate the factors that affect children and parents' trip to school choices. This chapter discusses in detail the themes that emerged from the analysis of the empirical data and that represent the most important enablers that children and parents perceive to be the most important enablers to active travel to school at individual, family, community, and wider society/environmental levels in section 6.2. A graphic synthesis of the enablers to active travel to school is presented in section 6.3. An analysis of the barriers by group, age, gender and travel mode is presented in section 6.4. Finally, a summary of the chapter is presented in section 6.5.

6.2 Emergent themes as enablers

As identified by both children and parents participating in this research, the most common enablers to active travel to school can be categorized into 12 themes: '*perceptions of safety and pleasance', 'health and fitness benefits'; 'the positive perceptions of cycling'; the 'social and developmental benefits'; 'living closer to school, work and other destinations'; 'good weather'; 'having good public transport'; 'the environmental benefits of active travel'; 'the negative perceptions of car use'; 'cost and access'; 'appropriate equipment, and planning ahead'* (Figure 6.1). The 11 themes included a total of 63 sub themes that are presented in detail in the following sections.

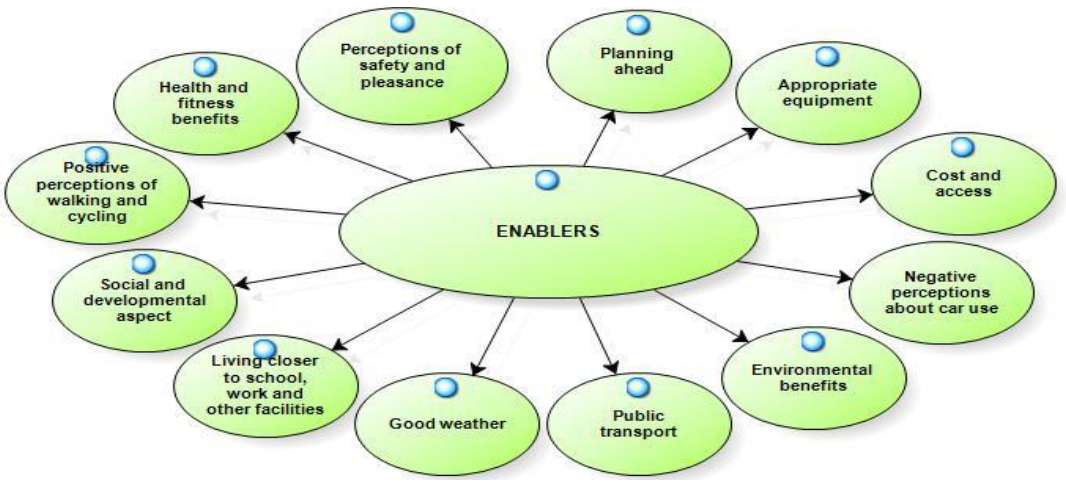


Figure 6.1: The enablers to active travel to school as identified by children and parents

6.2.1 Perceptions of safety and pleasance

Perceptions of personal risk include *'having parental permission', 'quiet areas and not having roads to cross', 'secure and nice areas',* a *'pleasant environment', 'familiar routes and the company of others', 'secure facilities at destinations', 'having pedestrian crossings', 'cycle lanes and cycle paths'* and *'good pavements'* (Figure 6.2),

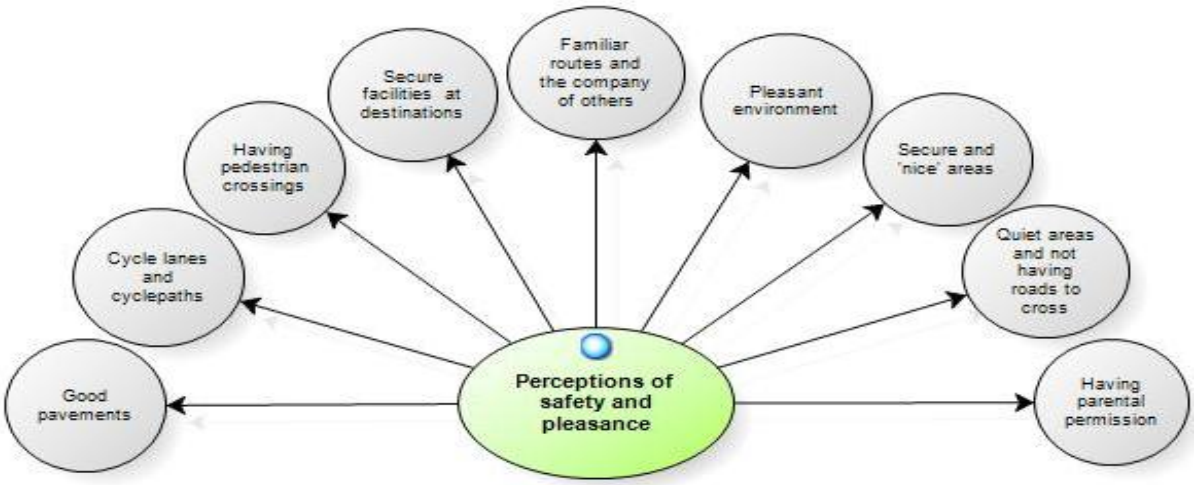


Figure 6.2: Perceptions of safety and pleasance

Having parental permission

Parents allowing and encouraging children to walk or cycle by themselves is the main enabler to walking and cycling. The aspects that encourage active travel not only for children but for parents themselves are mainly the perception of safety and pleasure that include having quiet roads, pedestrian crossings, good pavements, cycle lanes, secure and nice areas, a pleasant environment and secure cycling facilities at destinations,

> PAC-SSI-10: *"As long as we perceive it to be safe, the way that she walks, it is not a problem"* (male parent)

Quiet areas and not having roads to cross

Children and parents report that living in quiet areas and neighbourhoods with low traffic and not having roads to cross are all enablers for walking or cycling to school,

> CHA-AG4: *"when we are walking there are no roads to cross apart from the one that we live on'* (boy, aged 7-11)

PC-SSI-19: *"there is no much traffic in our neighbourhood so we walk a couple of quite streets, a main road and a short path to go to school. We walk everyday to school"* (female parent)
PC-SSI-17: *"he does not have to cross any major roads"* (male parent)

Secure and nice areas

Parents and carers consider that 'nice' and 'secure' roads and areas as enablers to walking to school or to other destinations after dropping off their children. They considered that roads or areas with 'good lighting', especially in the evenings or at certain times of the year and with 'police' surveillance encourage them to walk instead of opting for driving,

PC-FG1: *"nice areas with police and good lightened roads encourage me walking"* (female parent)
PC-FG2*: "the lighting as well, especially in the evening or when it is winter, as a woman you want it to be the safest possible, wouldn't you? Then you take that road because is nicer than the other"* (female parent)

Pleasant environments

Children consider a pleasant environment, in terms of green, clean, peaceful, wildlife and nature, etc., through paths, canals or parks are enablers to walking and cycling. Parents also consider having 'pretty roads', 'good scenery', 'beautiful surroundings' and 'walking through parks' as enablers,

CHD-SSI-21*: "when you walk by the canal, it is always beautiful and you kind of get lost in the surroundings"* (girl, aged 12-16)
CHD-SSI-22: *"you can still see birds, things like that. It is just nice!"* (boy, aged 7-11)
PC-SSI-13: *"ever luckier being able to walk over the park, which is a great environment for the children, no roads really to worry about"* (female parent)
PC-FG1: *"a lot of green places such as parks and also trees make the trip more enjoyable"* (female parent)

Familiar routes and the company of others

Parents report that the use by their children of a familiar or 'agreed' route' is an enabler to walking and cycling. In addition, the presence of other children and more people around is also mentioned as enablers,

PC-SSI-17: *"provided he sticks to the agreed route at a time when many other children are around, it is safe"* (male parent)
PC-SSI-13: *"the positives are that as my son has been attending to the same school since he started going to school, we know most of the parents, and normally at school times there are many of them and more people around in the route to school. Somehow this is*

reassuring in terms of his safety, as if something happens to him, someone should notice it and help him out" (female parent)

Children mention having the company of another member of the family or a friend living nearby as an enabler to walk and cycle,

CHD-SSI-22: *"on my way back home, I have to go here [pointing at the drawing] my friend, I always go with him because he lives there"* (boy, aged 12-16)
CHA-AG4: *"I walk on my own. But then when I meet my friend when I just go on the alleyway, I walk with him"* (boy, aged 7-11)
CHA-AG6: *"I've got a friend that lives nearby and sometimes I go with my friend and cross the road with him. My friend always walks to school"* (boy, aged 7-11)

Parents and carers consider that having company to walk or cycle or seeing others doing it motivates them to walk and cycle and also to keep doing it,

PC-FG2: *"my friend walks with me and I get motivated to do it too. I wouldn't do it on my own"* (female parent)

Secure facilities at destinations

Children considered that the provision of secure facilities at home and at school was important. As secure facilities they consider having garages and sheds at home and cycle parking and cycle rails at school. Similarly, use of 'secure storage' such as a space, a garage or shed at home and having a safe place to lock a bike at other destinations was also considered an enabler to walking and cycling by parents and carers,

PC-SSI-19*: "we have a shed to keep the bikes, so it is not a problem"* (female parent)
PC-SSI-13: *"we have space for storing all our stuff under the stairs"* (female parent)

Having pedestrian crossings

Children consider pedestrian crossings as enablers to their walking. The 'zebra' type of crossing was considered easier to use by some of them because the vehicles stop if someone is crossing and because of its distinctive features (flashing lights and a path marked with black and white stripes),

CHA-AG1: *"the zebra crossing is good, cos ' it has lights and flashes as well and most of the cars wait until you go across it. It's easy to cross. It's good for children because it's a zebra"* (boy, aged 7-11)

Regarding walking, some parents and carers consider that a good number of pedestrian crossings is a positive sign of having priority on the design of streets. In general, they

consider that the presence, good condition and appropriate location of pedestrian crossings are enablers to walking. In this aspect, they mentioned the 'zebra' and the 'pelican' as the 'safer' types of pedestrian crossings,

> PC-FG1: *"there are a lot of zebras crossings in the streets, so this means that you are more important than a car"* (boy, aged 7-11)
> PC-SSI-16: *"we also have a pedestrian crossing at the traffic lights in good condition"* (female parent)

Cycle lanes and cycle paths

Some children report cycling on the pavements, or having cycle paths or cycle lanes as enablers in regards to cycling,

> CHB-AG3: *"you can do it on the pavement"* (boy, aged 12-16)
> CHA-AG4: *"there is a path!"* (boy, aged 7-11)
> CHB-AG5: *"if there are any cycle lanes"* (girl, aged 12-16)

Similarly, parents consider that the presence of cycle lanes is a significant enabler to cycling, as they considered them 'safe'. In addition, parents reported choosing nicer areas and cycle paths away from cars to enjoy cycling,

> PC-FG1: *"we need cycle lanes to be safe"* (female parent)
> PC-SSI-10: *"Most days I tend to choose quieter roads, with cycle paths if possible. And I try to find an enjoyable way to go to work, with reasonable wide spaces, so is more of a relaxing thing that a commute would be. I tend to go through a village, with trees, and round pass the ship canal and keep as far away from cars as possible"* (male parent)

Good pavements

Parents considered having good, wide, clean, and tidy pavements, footways on the route to school or other places as enablers to walking and cycling,

> PC-SSI-16: *"Well, regarding the walking route we use if walking to school, at the moment the pavements are good, very clean"* (female parent)

6.2.2 Health and fitness benefits

Health and fitness benefits include many positive aspects that children and parents alike mentioned as enablers to active travel to school (Figure 6.3),

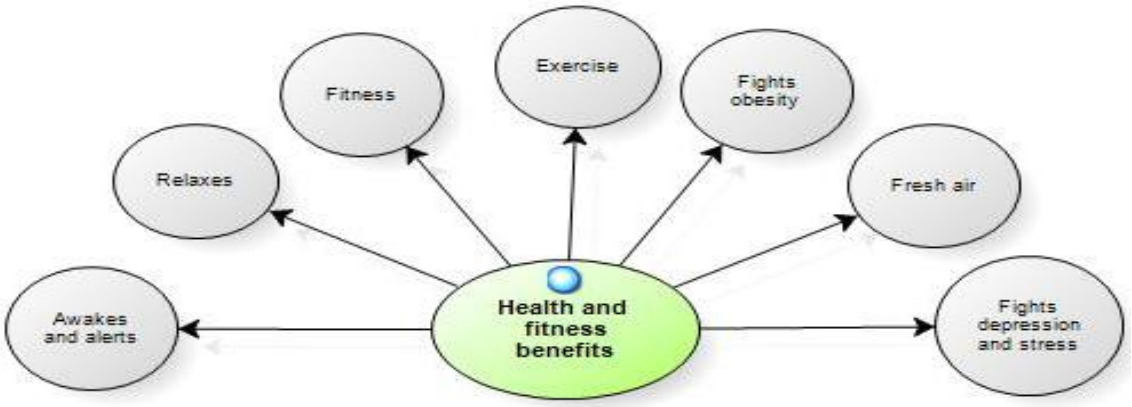


Figure 6.3: Perceptions of health and fitness benefits

For example, children consider that being outdoors provides them with the opportunity of 'getting fresh air' on the way to school and describe the effects of this as 'feeling better', 'more awake' and 'alert' at school. In addition, they also consider that the exercise 'relaxes', 'energises' and keeps them 'fit'. Children are aware of the health benefits, not just the more obvious aspects to do with improving fitness, but also for being good for the heart and lungs and more specifically, to fighting obesity,

> CHA- AG5: *"we get fresh air before you go to school"* (boy, aged 12-16)
> CHA- AG3: *"I feel better and more awake"* (girl, 7-11)
> CHA-AG6: *"It is exercise, keep you fit'* (girl, aged 7-11)

Similarly, parents and carers consider that walking and cycling provides them and their children with 'the exercise for the day'. They consider that besides 'fitness' the effect of the exercise they or their children get whilst walking or cycling makes them more 'awake and alert' at school and work and helps to combat 'depression and stress',

> PC-SSI-17: *"the walk, although a relatively short distance, keeps him fit"* (male parent)
> PC-FG1: *"the thought of that is the exercise I'm going to have for the day may as well"* (female parent)
> PC-SSI-10: *"I suppose that fitness is a part of it; arriving at work awake and alert"* (male parent)
> PC-SSI-15: *"It's the exercise, and the truth is, when you are depressed or stressed, the exercise helps you out"* (female parent)

6.2.3 Positive perceptions of walking and cycling

Positive perceptions of walking and cycling include many positive aspects that children and parents alike mentioned as enablers to active travel to school (Figure 6.4),

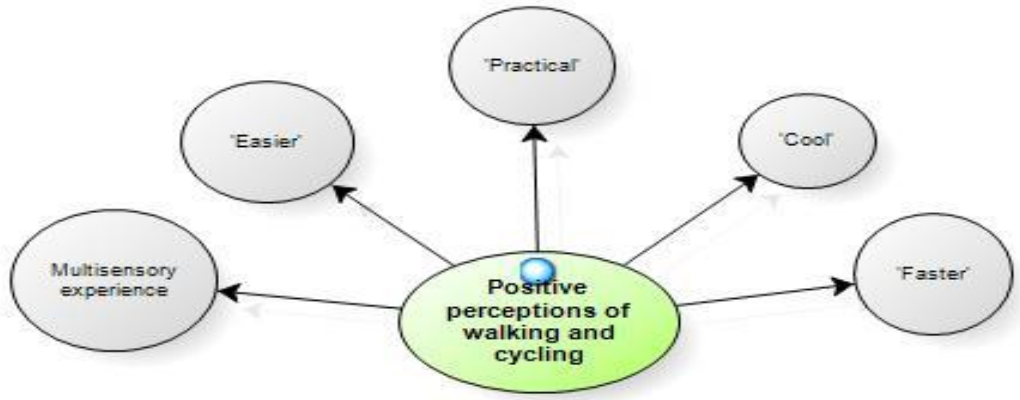


Figure 6.4: Positive perceptions of walking and cycling

For example, children perceive cycling as 'cool' and 'faster' than walking and in some cases than driving. In addition, they express their dislike of being 'inside a car' and their preference to be outdoors walking or cycling instead,

> CHA-AG6: *"It's cool!"* (boy, aged 7-11)
> CHA-AG4: *"you get there faster'* (boy, aged 12-16))
> CHA-AG1: *"I like to be outside rather than in the car"* (boy, aged 7-11)

Parents and carers perceived that walking and cycling offers people a 'multi-sensory experience' that keeps them 'in touch with the world around' instead of 'in a metal box with glass and heating' that of a car,

> PC-SSI-10: *"when you are cycling you have all your senses to enjoy, you can feel, smell, and hear clearly, everything feels very natural you can stop, rest and carry on"* (male parent)
> PC-SSI-12: *"you are more in touch with the world around you, instead of in a metal box with glass and heating"* (male parent)

Parents that walk and cycle regularly, considered walking 'easier' than driving; and cycling, more 'practical' for most of the trips such as 'commuting', 'shopping', and for 'social life',

> PC-SSI-13: *"sometimes you know it is a lot easier just to walk, than to drive to places, you just seem to see more, notice more"* (female parent)
> PC-SSI-12: *"its part of how I see myself, I'm a cyclist through and through. It's practical for me for commuting, shopping, social life, just about all trips"* (male parent)

6.2.4 Social and developmental benefits

Social and developmental benefits include *'quality time and bonding', 'socialising', independence and freedom' 'perceiving the surroundings', 'joy and fun',* and *'feeling more grown up, confident and independent'* (Figure 6.5),

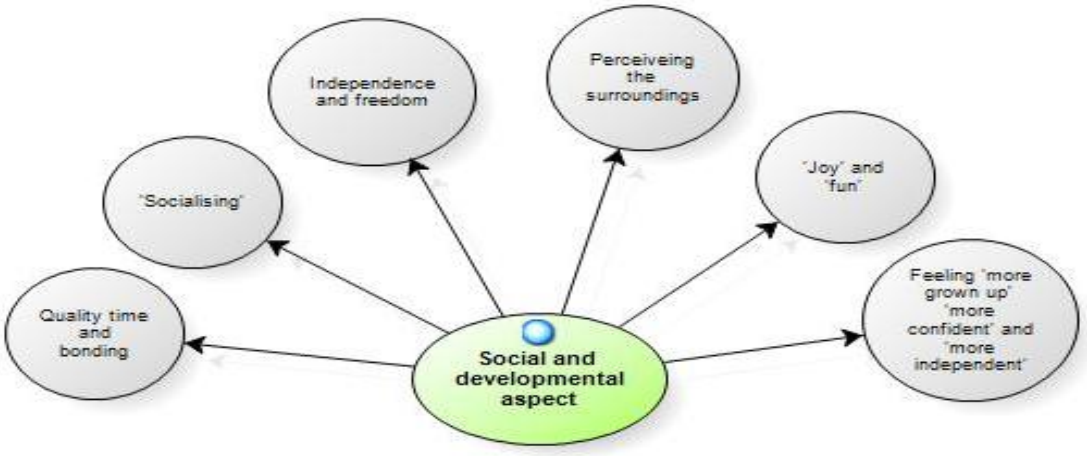


Figure 6.5: Social and developmental benefits

Quality time and bonding

Parents that walk report that walking (as opposed to driving) allows them to enjoy quality time and bonding with their children,

> PC-SSI-13: *"we would have nice conversations on the way to school, hearing each other on the way to school. At least I can concentrate on them; I don't have to concentrate on driving"* (female parent)

Socialising

Parents and carers highlighted the social benefits of walking and cycling for them and also for their children. With regards to their children, parents consider that spending time outdoors provides them with the opportunity for 'socialising with other people in the community',

> PC-SSI-13*: "being on foot with my children, we go a lot more to the local community shops and they do know my children, ... so that is a good positive thing, because children become socialised within the community"* (female parent)

Parents and carers that are regular walkers and non-car users highlighted the importance of socialising with people living around in the community as a way to help them to cope better without a car,

> PC-SSI-13: *"the key is, we live in a good area, with a good community of people, we will help one to another, and even there are people out there that would say: well, do you want me to take anything to the skip, to the local tip? So yes, I keep a good contact and communication with my neighbours and friend"* (female parent)

Independence and freedom

Parents and carers express their views that by not having to escort children to school gives them more time and greater flexibility to get to work, etc.,

> PC-SSI-17: *"not having to escort them to school gives adults greater flexibility to get to work etc."* (male parent)

Parents that cycle also describe the feeling of independence and freedom that cycling gives them,

> PC- SSI-12: *"it is nice to cycle and it's nice for you, you have more freedom"* (male parent)
> PC-SSI-10: *"just for freedom, the ability to choose your own path and the ability to make your own decisions, and not be tied to a particular way of going. You can choose to take a short cut, you can just have an open mind, and you can set out and to change things as you go along"* (male parent)

Perceiving the surroundings

Children report that walking or cycling allows them to 'see' their surroundings whilst they walk or cycle to and from school, i.e., 'shops', 'other people', 'pets', 'the ice cream van', the 'lolly pop man', etc.,

> CHA-AG1: *"you can see all the shops whilst you go along"* (girl, 7-11)
> CHA-AG4: *[seeing] "all the rocks, because it is really fun. I like the pet thing, seeing the animals… I see ducks on my route!"* (boy, 7-11)

Parents also consider that spending time outdoors gives their children the chance to 'take in the surroundings' and be more aware of the environment,

> PC-SSI-10: *"also the benefits of walking to school are being able to take in the surroundings; you obviously notice the seasons more" (*female parent)

Joy and fun

Children mention the 'joy' and 'fun' aspect of walking and cycling accompanied by others, especially as they can play on the way to school,

> CHD-SSI-21: "sometimes I walk with my friends because they live the same way. I prefer to walk with my friends because it is more enjoyable" (girl, aged 12-16)
> CHA-AG4: "If I've set off really early and my brother is with me we can play" (boy, aged 7-11)

Feeling more grown up, more confident and more independent

Children report feeling 'more grown up', 'more confident' and 'more independent' when they are allowed to walk and cycle to school on their own. Some children in this group reported that they would be able to walk or cycle greater distances than they are normally permitted to by their parents,

> CHA-AG4: *"I've walked much further myself, when mum is not looking"* (boy, aged 7-11)

Parents and carers also consider that spending time outdoors makes their children 'more confident' and 'independent',

6.2.5 Living closer to school, work and other facilities

Living closer to school, work and other facilities include: a '5 to 15 minute walk', 'safe shortcut routes', 'work within walking distance', 'having flexibilities and facilities at work', 'friends or family close by', having 'diverse facilities around' and having 'shopping facilities with free delivery systems' (Figure 6.6),

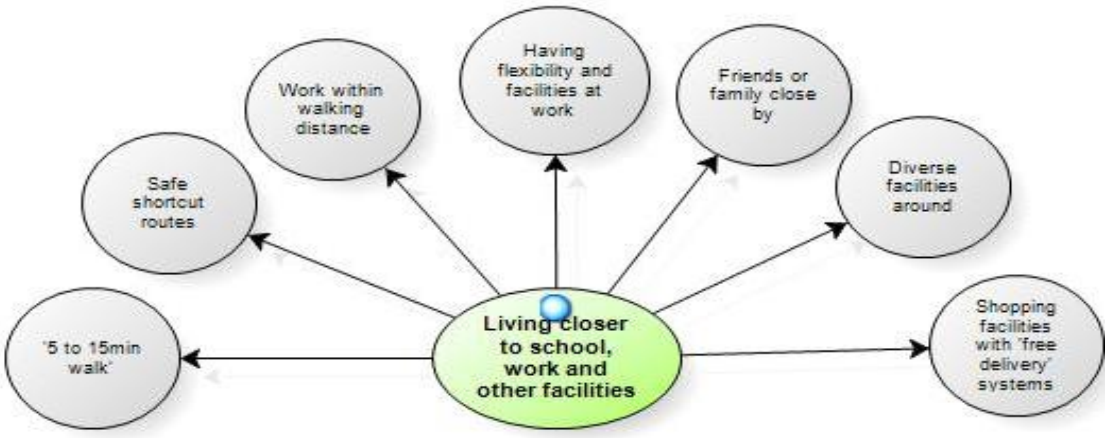


Figure 6.6: Living closer to school, work and other destinations

A '5 to 15' minute walk

In relation to distance, children identified 'living closer', 'a few steps away', were mentioned as enablers to active travel to school,

> CHA-AG1: *"I only live across the road from school so I am always allowed my own now I am 8"* (boy, aged 7-11)
> CHA-AG4: *"I always walk, usually, because I live near"* (boy, aged 12-16)

Parents considered a '5 to 15 minute' walk as an enabler to walking to work after walking with the children to school.

Safe shortcut routes

Children consider that having the possibility to take safe 'shortcut' routes to school as an enabler to walking,

> CHA-AG4: *"I always take a shortcut through the alleyway to shorten the distance; it is safe in the mornings" (boy, aged 7-11)*

Work place within cycling distance

Having less than a '30 minute cycling journey' to work or other destinations plus 'the journey being not much quicker in the car' as enablers to regular cycling,

> PC-SSI-10: *"I have a 30 minutes journey cycling. It is probably, the easiest way to get to work to avoid sitting in traffic, really, the distance I travel isn't really so much quicker in the car"* (male parent)

Having flexibility and facilities at work

In relation to work, parents and carers consider that having certain flexibility at work (i.e., working part-time and flexi-time) and having some kind of provision at work (i.e., cycle racks, showers, changing rooms, etc.,) are also enablers to walking and cycling,

> PC-SSI-20: *"the company I work for provides showers, changing rooms, spaces in the car park for car sharing"* (female parent)

Having friends or family close by and the diverse facilities needed around

Parents consider that having friends and family close by and the diverse facilities needed around is an enabler to walking and cycling. The diverse facilities included school, shops, leisure centres, doctors, dentists, vets, etc.,

> PC-SSI-13: *"I live and work in the community, I got the facilities I need around, the local school, the local shops, the leisure centre, the vet, and so on, I get to know lots of friends and people and business and that helps a lot"* (female parent)
> PC-SSI-10: *"the school is not so far away, and even if she needs to visit her father is not that far. Everything is within walking distance; everything is convenient, my mother and the local leisure centre, the shops, the library... the dentist, doctors..."* (male parent)

Shopping facilities with free delivery systems

In relation to shopping facilities, child-friendly staff at small local shops and a 'free' delivery system in place for bulky items was also identified as a way of coping without a car by parents and carers that walk and cycle regularly,

> PC-SSI-13: *"and of course the kind staff that know my children. Just convenience, really, and I know that is a place where you pay a little bit extra, but for me is worth it, just to have to pop in and have a bit of a shopping, because a big shop takes more time, and the children are not very good at shopping, so…"* (female parent)
> PC-SSI-13: *"large items of shopping for me are big bags of dog food, cat litter and tins cat food as I have three dogs and cats and guinea pigs. Then I have free delivery from local green grocers in the area, which is great!"* (female parent)

6.2.6 Good weather

Good weather include 'spring', 'summer', 'daylight' and 'sunny' (Figure 6.6),

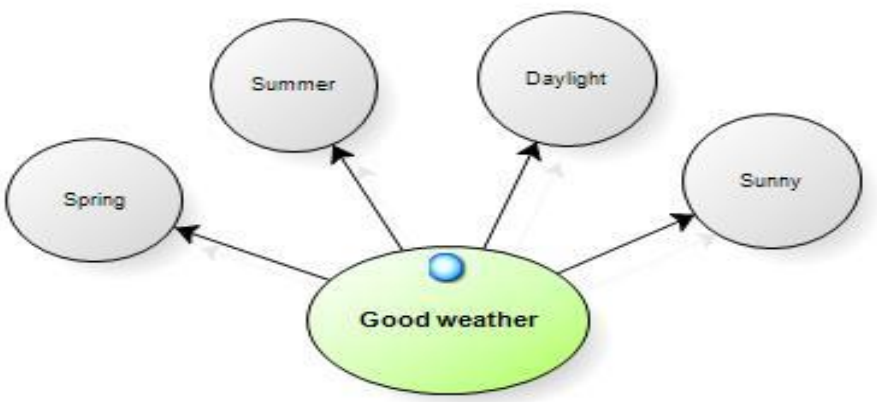


Figure 6.7: Good weather

Children, parents and carers alike identified good weather and daylight "during spring and summer" as enablers of active travel to school,

> PC-SSI-15: *"sometimes if the weather is good, mainly during spring and summer we cycle to school or my daughter uses her scooter"* (female parent)
> CHA-AG4: *"sometimes we walk because is sunny and things like that"* (boy, aged 7-11)

6.2.7 Public transport

The positive perceptions of public transport include: the 'convenience, low fares and discount', the 'availability and reliability', 'the easy access to diverse modes', 'driver's friendliness', and 'access to cycles' (Figure 6.8),

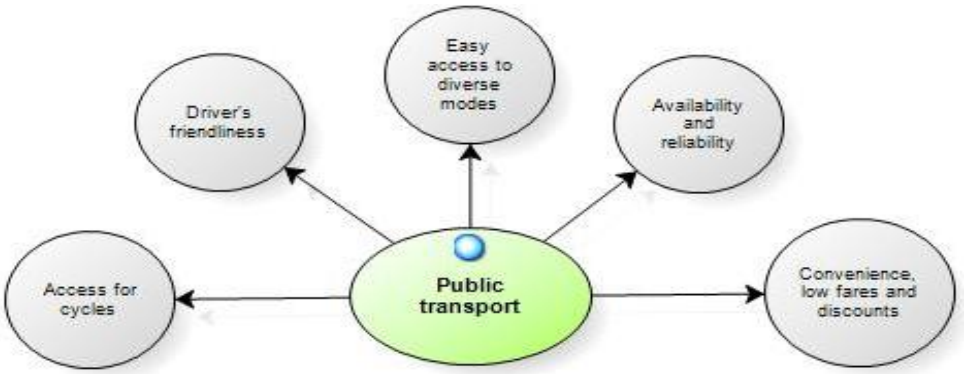


Figure 6.8: Positive perceptions of public transport

Convenience, low fares and discounts

In relation to the bus service, parents and carers considered that the location and distance to the bus stops, the convenience of the routes, the accessibility of the bus, and the low fares and discounts offered on the fares, are all enablers to active travel,

> PC-FG1: *"a lot of the time I suppose that it depends where the bus stops are situated as well"* (female parent)
> PC-SSI-12: *"The discounts on bus tickets"* (male parent)

Availability, reliability and the easy access to diverse modes

Parents and carers, consider that the 'availability', 'reliability' and 'easy access' to diverse modes of public transport' (i.e., buses, trams, trains or local taxi services) was a positive feature that enables them to cope without a car, and therefore to encourage active travel modes in their children to go to school,

PC-SSI-13: *"relying on [public transport] becomes sort of A to b, something that it has to be done"* (female parent)

'Driver's friendliness'

With regards to the taxi service, the easy access and reliability of the service (i.e., by call at the local shops), and most of all, the friendliness of the driver (especially to children) were reported as positive elements by parents and carers,

PC-SSI-13: *"taxis, again, occasionally, once, twice a month or even three times a month I go to the big supermarket. I would take the bus there and I would get a taxi in the return journey. Often you can pick up a phone and a taxi company is at the end of that phone. So you can just order one. I rely a lot on taxis. It just has to be that way. Children sometimes just need to tag along"* (female parent)
PC-SSI-13: *"but children love it when the taxi is like a minibus, a people carrier, they really enjoy that. I think that 8 times out of 10 the taxi driver is really nice"* (female parent)

Access for cycles on trains

Parents and carers that cycle regularly, considered that being able to transport a cycle with them on a train at a low cost, is an enabler to cycling,

PC-SSI-12: *"being able to put my bike on the train, and travelling cheaper when I do (I work on the railway'* (male parent)

6.2.8 Environmental benefits

Environmental benefits include 'saves fuel', 'decreases global warming', reduces contamination', 'produces less noise', and 'avoids traffic queues' (Figure 6.9).

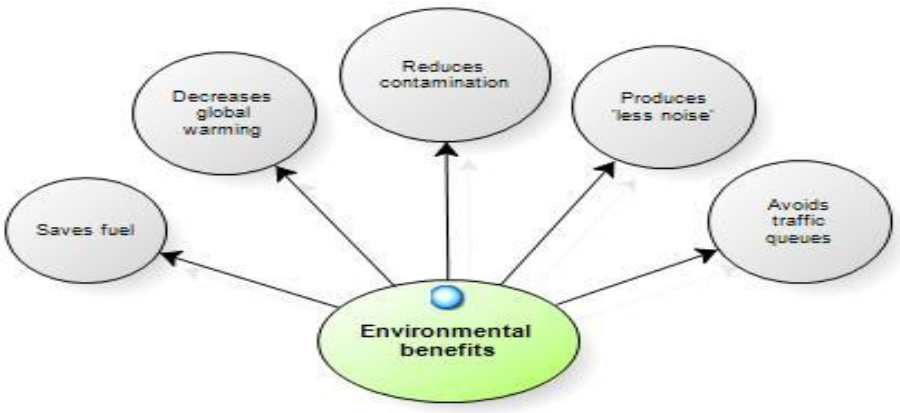


Figure 6.9: Environmental benefits

Children, parents and carers alike considered that walking and cycling are environmentally friendly because they help to 'reduce contamination' and 'car pollution' and also they 'decrease global warming' and 'produce less noise'. In addition, children reported that by walking and cycling people 'save fuel'. Parents and carers that cycle regularly also report saving fuel and highlight the opportunity that cycling presents to avoid traffic queues,

> PC-FG2: *"walking is healthy and we can reduce car pollution and decrease the global warming"* (female parent)
> CHA-AG6: *"it is important because the cars smoke, the flowers eat the air and then it spit it out in something like…clean, they make it clean. They breathe it out so we breathe it in"* (girl, aged 7-11)
> CHA-AG4: *"saves fuel"* (boy, aged 7-11)
> PC-SSI-10: *"so without spending fuel, without seating in traffic I can get there my own way"* (male parent)

6.2.9 Negative perceptions about car use

Negative perceptions about car use include: *'causes pollution',* driving not being *'enjoyable', 'costs of keeping a car and parking issues', 'car dependence and impacts on health',* and *'negative impact for the quality of life of families and communities'* (Figure 6.10).

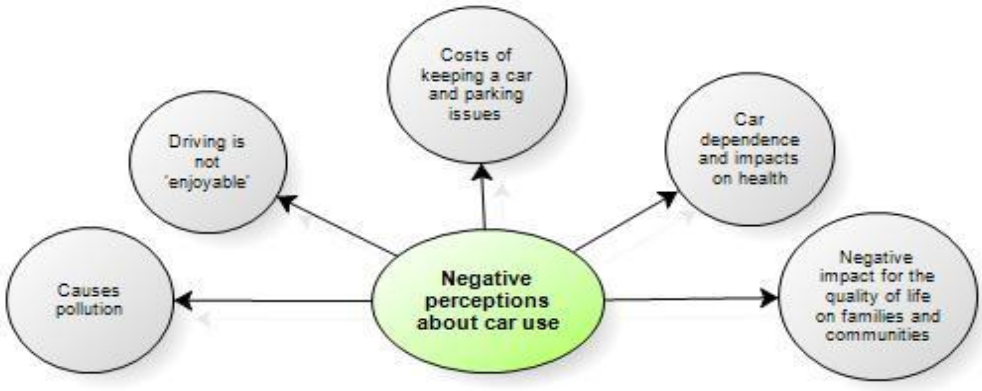


Figure 6.10: Negative perceptions about car use

Causes pollution

Children are aware that car use causes 'pollution' and this is bad not only for the environment but for themselves,

CHA-AG6: *"it's faster, and you won't be late to school but the bad thing is like pollution and stuff; pollution is bad because birds can die, and if all the air gets polluted we can die because we can't breathe"* (girl, aged 7-11).

Driving a car is not enjoyable

Parents report their 'lack of enjoyment' in driving a car, because it does not offer the same kind of experience as being outdoors,

PC-SSI-10*: "I have a car, I can drive and it is there when I needed but, it is not something I want to do. It doesn't really offer any benefits, cars don't offer anything in the sense that driving somewhere in a car you have not done anything, you just sat, you are not really participating of the environment; you are just sat in a metal box. It doesn't do it for me"* (male parent)

Costs of keeping a car and issues with parking

Parents and carers reported the high cost of keeping a car, i.e, the expenses of fuel, MOT, road tax, toll, lack of parking and cost of it, as disadvantages of car use,

PC-SSI-13: *"it is the expense of insurance, the expense of the maintenance of a car, the general upkeep of a car…"* (female parent)
PC-FG1: *"trying to park in the front of your house...you know, if you don't have a drive. You end up in the other street!"* (female parent)

Car dependence and negative impacts on health

Parents and carers feel society has become a kind of 'addict' to car use and people do not consider healthier travel options. In addition, they acknowledge the effects of permanent and sometimes unnecessary car use on theirs and their children's health, i.e., they considered they became more sedentary and 'lazy',

PC-SSI-10: *"people think they are doing the best for their children by driving them in a 4x4 or in a car and dropping them off. That is the way people are. They are now hooked on cars, hooked on oil"* (male parent)
PC-FG1: *"you become lazy – you use the car for things that are within walking distance"* (female parent)

Negative impact for the quality of life on families and communities

Parents and carers consider that the loss of time spent behind a driving wheel affects quality of life of families, and regular use of cars also affects communities, i.e., limiting people's daily interaction,

PC-FG2: *"my husband works with people that drive for hours every day in order to go to work, that is not quality of life, because they spend long time in a car instead of sharing that time with their families"* (female parent)
PC-FG1: *"I think what has already emerged from people using the cars on regular basis is that breaks down the community because you don't have that interaction with people in everyday life"* (female parent)

6.2.10 Cost and access

Cost and access include 'cheaper', 'its free' and 'saves money' (Figure 6.11).

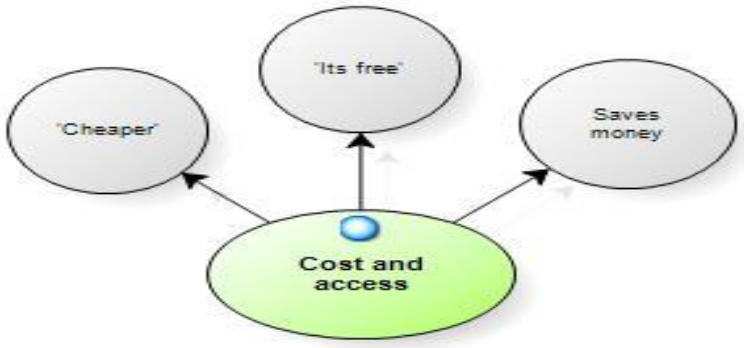


Figure 6.11: Cost and access

Walking and cycling are considered 'free' and 'cheap' options respectively. Compared to the cost of running a car, walking and cycling saves money to parents and carers. Simply 'having a bike' is reported as an enabler to cycling by children, parents and carers that cycle,

CHA-AG4: *"it's free!"* (boy, aged 12-16)
PC-SSI-12: *"I love travel and it's the best way to see places, just as a happy side effect, it also saves me money"* (male parent)

In addition, children, parents and carers equally consider that not having access to a car leaves them with no other choice than walking, cycling or using public transport,

PC-SSI-11: *"walking is my only option, as we don't have a car"*

6.2.11 Appropriate and comfortable equipment

Children and parents that are regular walkers and cyclists report coping with bad weather conditions such as rain, snow, etc., by carrying and wearing 'appropriate' and 'comfortable' equipment (i.e., clothing and footwear) that responds to the current climate (i.e., rain boots or winter boots, etc.) and that keeps them safe (i.e., helmet and high-visibility gear, etc.),

> PC-SSI-13: *"obviously they have to be in their wellies, their snow boots. They will take the spare shoes with them and get them changed in the cloakroom. Just have to make sure that they take them with them, it is the only thing"* (female parent)
> CHA-AG1: *"I ride my bike to school and I live on Ivy Green Road. When it's raining I wear a coat but when it's cold I just wear a jumper*" (boy, aged 7-11)
> PC-FG1: *"comfortable clothing and footwear"* (female parent)
> PC-SSI-12: *"If I have good equipment, for example helmet and high-vis jacket"* (male parent)

In addition, parents and carers mention the advantages of having equipment that allows carrying heavy items of shopping i.e. push along shoppers, buggies, etc. (Figure 6.12),

> PC-SSI-14: *"but the buggy has been great! It has been a great advantage. I have a push along shoppers as well"* (female parent)

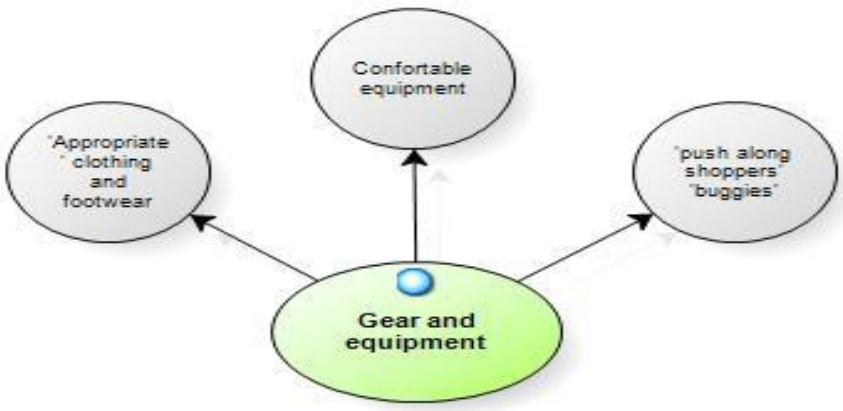


Figure 6.12: Appropriate gear and equipment

6.2.12 Planning ahead

Planning ahead includes *'previous preparation', allowing 'extra time'*, 'extra effort' and splitting *'big'* tasks into '*little ones'* (Figure 6.13).

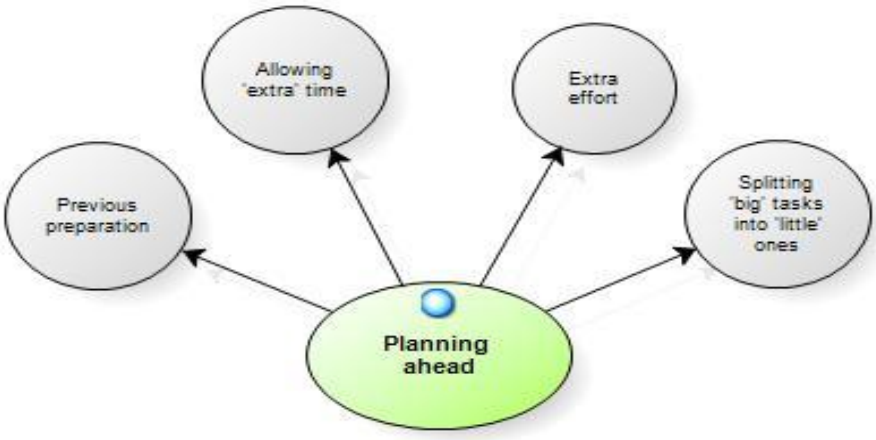


Figure 6.13: Planning ahead

Previous preparation, extra time and extra effort

Parents and carers that walk or cycle regularly report 'planning' as a procedure that helps them to cope without using a car. This requires previous preparation, i.e., 'the night before' and some 'extra time' before setting off.

> PC-SSI-12: *"I think the main thing is to plan ahead. If you don't plan the night before then it's way too easy to get flustered in the morning and grab your car' keys. I set my riding clothes and I pack my work clothes the night before. I even do a quick check for tire pressure, just to make sure it is ok and I don't get surprises in the morning. You just need to set the alarm a little earlier every day to allow you time to get out the door and ride to work"* (male parent)
> PC-SSI-10: *"for us to all ride as a family it takes a degree of effort, a degree of planning, maybe if we go in the car we don't need to do so"* (male parent)
> PC-SSI-13: *"you need some extra time for that in the mornings! We have space for storing all our stuff under the stairs, but that always adds more time getting out of the door. If you are travelling by car I imagine you can kind of do that in the car, because you can put your own stuff in the car*" (female parent)

Splitting big tasks into little ones

Shopping is an issue reported by parents and carers that walk regularly, as it requires planning ahead. Some of them report splitting what could be a big shop into small ones that are more manageable during the time they have available

> PC-FG1: *"the shopping is done during my breaks, or after school, as I'm working locally"* (female parent).

Shopping for bulky items, in some circumstances, involves the help of friends and relatives that have access to a car, or sorting out the suitable transport. In some occasions even involves having to sort out ‘childcare’

> PC-SSI-13*: “I struggle with other big items like the washing powder, because I can’t buy in bulk. Large items that I buy for home such as quilts, pillows, I would probably rely on a friend to do that. Every time that I want to do a big shop, I have to make provisions perhaps for childcare, my friend to babysit, so I can go out and do that kind of shopping”* (female parent)

6.3 Graphic synthesis of enablers to active travel to school

A graphic synthesis of the enablers to active travel to school that include the 12 themes and 63 sub themes as identified by children and parents is shown in Figure 6.14.

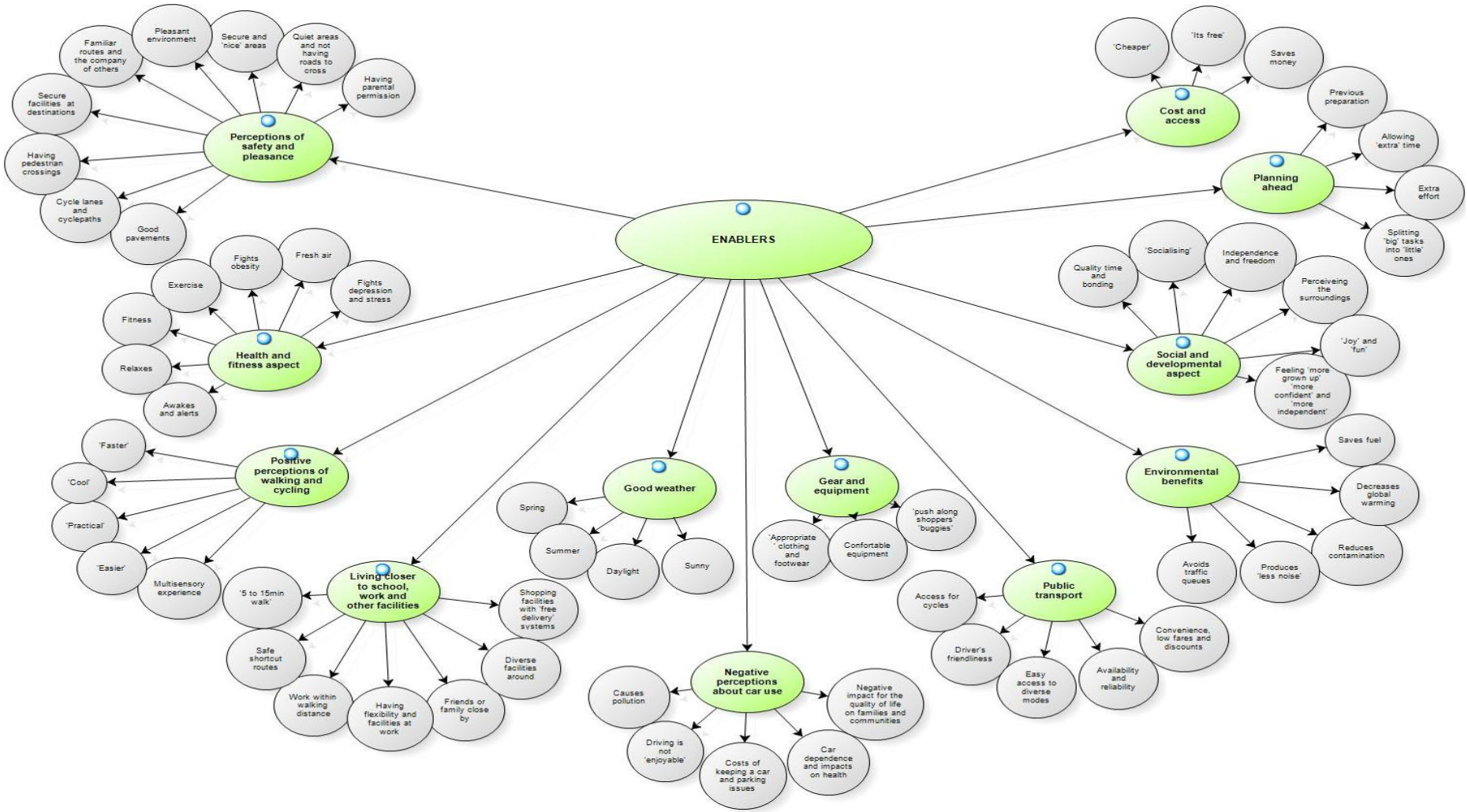


Figure 6.14: Graphic Synthesis of the enablers to active travel to school as identified by children and parents

6.4 Analysis and variation of the emergent themes as enablers

As mentioned previously, although the qualitative survey research method downplays the use of statistical analysis, it is useful to provide some frequencies of references to illustrate the most common perceived themes by children and parents. As can be seen in Figure 6.15 showing a table and pie chart with frequency of references, the most common themes resulted from the analysis of the data and emerging as enablers were in order of importance: '*perceptions of safety and pleasance', 'health and fitness benefits'; 'the positive perceptions of cycling'; the 'social and developmental benefits'; and 'living closer to school, work and other destinations'.* To a lesser extent, other enablers to active travel to school were: *'good weather'; 'having good public transport'; 'the environmental benefits of active travel'; 'the negative perceptions of car use'; 'cost and access'; 'appropriate equipment; and 'planning ahead'.*

Enablers	38	227
Name	Sources	Reference
Perceptions of safety and pleasance	18	90
Health and fitness benefits	27	74
Positive perceptions of cycling	24	60
Social and developmental benefits	15	47
Living closer to school, work and other facilities and flexibility	16	41
Good weather	20	39
Good public transport	7	35
Environmental benefits	12	24
Negative perceptions about car use	12	17
Cost and access	8	12
Appropriate equipment	3	12
Planning ahead	5	6

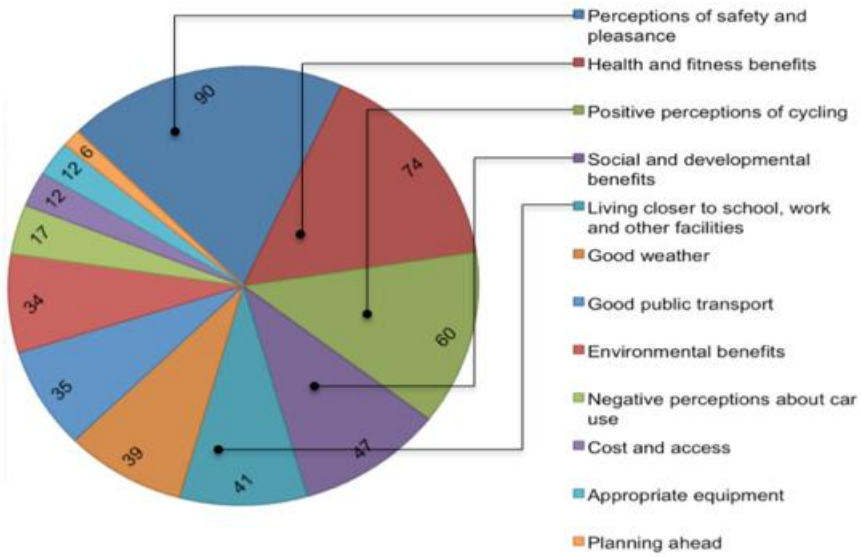


Figure 6.15: Table and pie chart with frequency of references showing the themes emerged as **enablers** to active travel to school

6.4.1 Analysis of the enablers by group

Further analysis based on the frequency of references showed that the level of importance of the thematic ideas emerging as enablers also varied between the groups of parents and children (Table 6.1). For example, for the group of parents the most important enablers are *'perception of safety and pleasance';* whilst for the group of children are the *'positive perceptions of cycling'.* In addition, both groups of parents and children consider the 'health and fitness benefits' as the second most important enabler to active travel. The *'social and developmental benefits'* of opting for active travel are the third most important enabler for the group of parents, whilst for the group of children it is *'living closer to school and other destinations'*.

Table 6.1: Rank order table showing the most important enablers by group

Rank Order	CHILDREN		Rank Order	PARENTS	
1	*Positive perceptions of cycling*	*33*	1	*Perceptions of safety and pleasance*	*79*
2	*Health and fitness benefits*	*19*	2	*Health and fitness benefits*	*41*
3	*Living close to school, work and other facilities*	*16*	3	*Social and developmental benefits*	*35*
4	*Perceptions of safety and pleasance*	*14*	4	*Positive perceptions/good public transport*	*34*
5	*Good weather*	*13*	5	*Living close to school, work and other facilities*	*32*

6.4.2 Analysis of the enablers by age group

There were also variations between the groups of children by age (Table 6.2), for example, whilst for the group aged 7 to 11 the most important enablers are the *'positive perceptions of cycling'*, for older children aged 12 to 16 are both *'living closer to school and other destinations'* in first place, and *'health and fitness benefits' in second place.*

Table 6.2: Rank order table showing the most important enablers by age group

Rank Order	CHILDREN AGED 07-11		Rank Order	CHILDREN AGED 12-16	
1	*Positive perceptions of cycling*	*24*	1	*Living close to school, work and other facilities*	*14*
2	*Health and fitness benefits*	*13*	2	*Health and fitness benefits*	*12*
3	*Good weather*	*7*	3	*Perceptions of safety and pleasance*	*8*
4	*Living close to school, work and other facilities/ Social and developmental benefits*	*6*	4	*Positive perceptions of cycling*	*7*
5	*Environmental benefits*	*5*	5	*Good weather*	*6*

6.4.3 Analysis of the enablers by gender

Enablers to children by gender

Analysis based on gender variables shows that for both male and female children the most important enabler to active travel to school is the *'positive perceptions of cycling'*. The '*health and fitness benefits'* comes a second distant also for both male and female children (Table 6.3).

Table 6.3: Rank order table showing the most important enablers to children by gender

Rank Order	FEMALE CHILDREN		Rank Order	MALE CHILDREN	
1	*Positive perceptions of cycling*	*30*	1	*Positive perceptions of cycling*	*27*
2	*Health and fitness benefits*	*18*	2	*Health and fitness benefits*	*13*
3	*Living close to school, work and other facilities*	*14*	3	*Good weather*	*7*
4	*Perceptions of safety and pleasance*	*13*	4	*Living close to school, work and other facilities/ Perceptions of safety and pleasance/ Social and developmental benefits*	*6*
5	*Good weather*	*12*	5	*Environmental benefits*	*5*

Enablers to parents by gender

Analysis based on gender variables found that for female parents, their *'perceptions of safety and pleasance'* is reported as the main and strongest enabler to active travel in the first place, whilst for male parents it is *'living closer to school, work and other destinations'* (Table 6.4).

Table 6.4: Rank order table showing the most important enablers to parents by gender

Rank Order	FEMALE PARENTS		Rank Order	MALE PARENTS	
1	*Perceptions of safety and pleasance*	*69*	1	*Living close to school, work and other facilities*	*11*
2	*Health and fitness benefits*	*34*	2	*Perceptions of safety and pleasance*	*10*
3	*Positive perceptions/good public transport*	*32*	3	*Good weather*	*8*
4	*Social and developmental benefits*	*30*	4	*Health and fitness benefits*	*7*
5	*Living close to school, work and other facilities*	*21*	5	*Social and developmental benefits*	*5*

6.4.4 Analysis by travel mode

According to their travel mode, parents and children were split into groups of walkers, cyclists, car users and bus users (Table 6.5). It was found that the main and most important enabler as reported by all the groups without exception was *'perceptions of safety and pleasance'*; however, the group of cyclists also reported *'living closer to school, work and other destinations'* in addition. The groups reported in second place diverse enablers, for example, walkers reported *'living closer to school, work and other destinations'*; cyclists mentioned the *'positive perceptions of cycling'*; car users reported the *'health and fitness benefits'* of active travel; whilst bus users mentioned the provision *'good public transport'*. *Walkers and cyclists considered 'good weather' as an enabler in third place*, whilst car users considered 'good public transport' and bus users *'health and fitness benefits'.* Car users, on the other hand, seem not to value the *'social and developmental benefits'* of active travel.

Table 6.5: Rank order table showing the most important enablers by travel mode

Rank Order	WALKERS		Rank Order	CYCLISTS		Rank Order	CAR USERS		Rank Order	BUS USERS	
1	*Perceptions of safety and pleasance*	*62*	1	*Perceptions of safety and pleasance/ Living close to school, work and other facilities*	*11*	1	*Perceptions of safety and pleasance*	*53*	1	*Perceptions of safety and pleasance*	*43*
2	*Living close to school, work and other facilities*	*30*	2	*Positive perceptions of cycling*	*10*	2	*Health and fitness benefits*	*47*	2	*Good public transport*	*26*
3	*Good weather*	*24*	3	*Good weather*	*8*	3	*Good public transport*	*26*	3	*Health and fitness benefits*	*23*
4	*Good public transport*	*23*	4	*Health and fitness benefits*	*6*	4	*Positive perceptions of cycling*	*22*	4	*Social and developmental benefits*	*12*
5	*Social and developmental benefits*	*22*	5	*Social and developmental benefits*	*4*	5	*Good weather*	*20*	5	*Good weather*	*11*

6.5 Summary

This research investigated the perceptions of children aged 7-16 and parents aged 20-60 from families living in urban contexts about active travel to and from school. It sought to elicit their views associated with perceived enablers to school travel and the factors influencing their current travel behaviour. The results showed that the key enablers could be categorised into 12 themes, which included a total of 63 sub themes. According to both children and parents participating in this research, the most common enablers to active travel to school were '*perceptions of safety and pleasance', 'health and fitness benefits'; 'the positive perceptions of walking and cycling'; the 'social and developmental benefits'; and 'living closer to school, work and other destinations'.* To a lesser extent, *'good weather'; 'having good public transport'; 'the environmental benefits of active travel'; 'the negative perceptions of car use'; 'cost and access'; 'appropriate equipment, and planning ahead'* also have an impact on active travel behaviour.

- *'Perceptions of safety and pleasance'* include 'having parental permission'; living in 'quiet areas and not having roads to cross'; 'secure and nice areas'; 'pleasant environments'; 'familiar routes and the company of others'; 'secure facilities at destinations'; having pedestrian crossings'; 'good pavements'; and 'cycle lanes and cycle paths'.

- *'Health and fitness benefits'* comprises 'feeling better'; 'more awake' and 'alert'. 'Exercise for the day'; 'fitness'; good for 'heart and lungs' and 'combats depression and stress'.

- *'The positive perceptions of walking and cycling'* include 'cool'; 'faster'; 'multisensory experience'; 'easier'; 'more practical' and good for 'social life'.

- *'The social and developmental benefits'* encompasses 'quality time and bonding'; 'socialising', 'independence and freedom'; 'perceiving the surroundings'; 'joy and fun'; 'feeling more grown up and confident'.

- *'Living closer to school, work and other destinations'* refer to 'a 5 to 15' minute walk; 'safe shortcut routes; 'work place within cycling distance'; 'having flexibility and facilities at work'; 'having friends or family close by and the diverse facilities needed around' and 'shopping facilities with free delivery systems'.

- *'Good weather',* includes 'daylight', 'sunny' 'spring'; and 'summer'.

- *'Having good public transport'* encompasses the 'convenience, low fares and discounts on bus services'; 'easy access, reliability and friendliness of taxi service'; and 'access for cycles on trains'.

- *'The environmental benefits of active travel'* refer to 'reducing contamination and car pollution'; 'decreasing global warming'; 'producing less noise'; 'saving fuel' and 'avoiding traffic queues'.

- *'The negative perceptions of car use'* include 'causes pollution'; 'driving a car is not enjoyable'; 'costs of keeping a car and issues with parking'; 'car dependence and negative impacts on health' and 'negative impact for the quality of life on families and communities'.

- *'Cost and access'* refers to the perception that active travel modes are considered 'free' and 'cheap' options.

- *'Appropriate equipment, and planning ahead'* encompasses carrying and wearing 'appropriate' and 'comfortable' equipment according to the current climate and safety conditions. It also refers to 'previous preparation, extra time and extra effort'; and 'splitting big tasks into little ones'.

A graphic synthesis was presented in order to illustrate children's and parents' reported perceived enablers to active travel to school. In addition, further analysis based on the frequency of references showed that the level of importance of the thematic ideas emerged as enablers varied between parents and children by group, age, gender and travel mode groups. It was found that '*perceptions of safety and pleasance'* are the most important enablers to active travel to school to parents and the *'positive perceptions of cycling' to children.* In addition, the *'health and fitness* benefits'; the '*social and developmental benefits'; and 'living closer to school, work and other destinations'* are also considered important enablers for both groups of parents and children. To a lesser extent, other enablers to active travel to school were: *'good weather'; 'having good public transport'; 'the environmental benefits of active travel'; 'the negative perceptions of car use'; 'cost and access'; 'appropriate equipment; and 'planning ahead'.*

CHAPTER 7: RESULTS - EMERGENT THEMES ON WHAT WOULD ENCOURAGE ACTIVE TRAVEL TO SCHOOL

7.1 Introduction

As stated in the introductory chapter of this thesis, one of the objectives was to gain knowledge of the factors that would motivate behaviour change in the context of the trip to school. This chapter presents and discusses, in detail, the themes that emerged from the analysis of the empirical data and that represent children and parents' perceptions of what would encourage active travel to school in sections 7.2 to 7.8. A graphic synthesis of what would encourage active travel to school from the point of view of children and parents is presented in section 7.9. An analysis of the emergent themes by group, age, gender and travel mode is presented in section 7.10. Finally, a summary is presented in section 7.11 of this chapter.

7.2 What would encourage active travel to school?

Children and parents were asked what would encourage them into active travel regularly on the trip to school. Six themes emerged from their answers and this reflects their perceptions about a combination of changes and improvements that would encourage them (Figure 7.1).

- Changes to the physical environment
- Reluctance to change
- Changes to the approach to active travel
- Changes to the social environment
- Changes to public transport
- Changes to the use of private vehicles

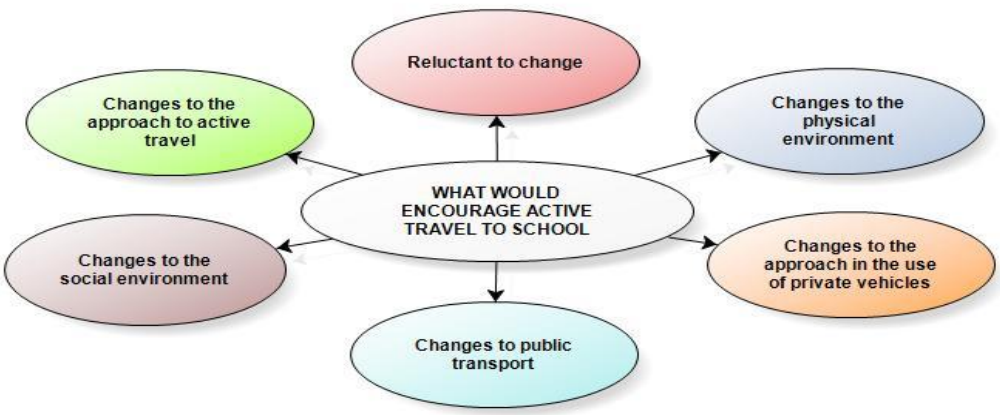


Figure 7.1: Six themes on what would encourage active travel to school as identified by children and parents

The six themes included a total of 28 sub themes that are presented in detail in the following sections.

7.3 Changes to the physical environment

Changes to the physical environment, according to children' and parents include 'facilities for cycling and walking'; a 'green and pleasant environment'; 'changes in households'; 'changes at school'; 'reducing distances and providing diverse facilities', and 'overcoming the weather' (Figure 7.2).

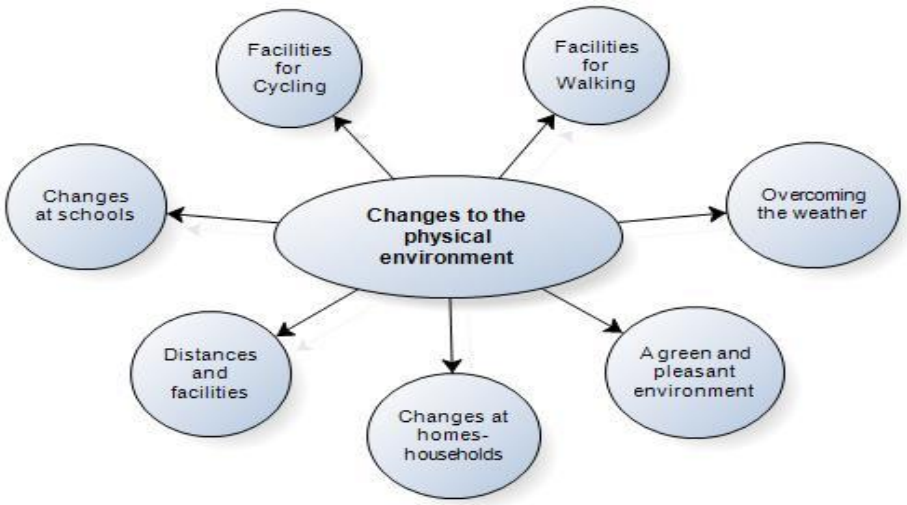


Figure 7.2: Changes to the physical environment

7.3.1 Facilities for cycling

Facilities for cycling include *'cycle lanes'*, *'cycle ways'* and *'cycle paths', 'wider and sheltered facilities', 'well connected', 'secure and sheltered storage', 'cycling speed limits and cycling traffic control', 'community public hiring system', 'bike doctor service', and 'helmets not required* (Figure 7.3).

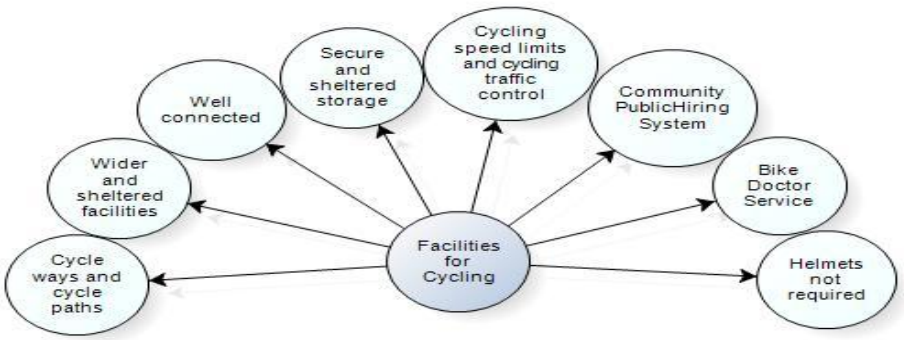
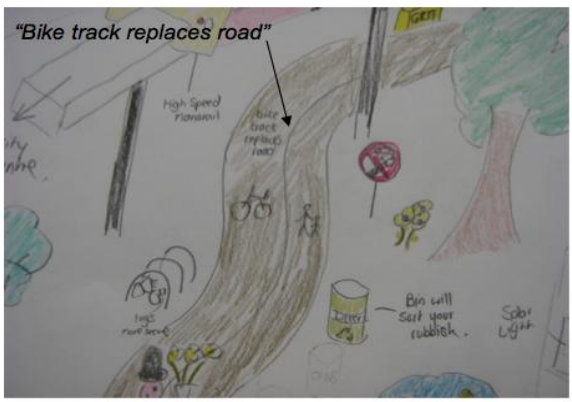


Figure 7.3: Facilities for cycling

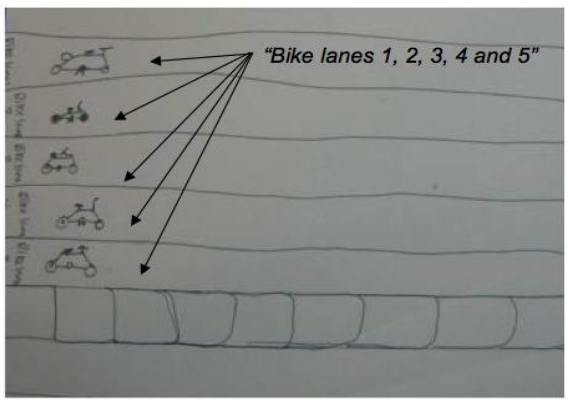
Children, parents and carers feel that a better design of the environment that focuses on developing more safe cycling provision instead of road provision for motorised vehicles would make them cycle on a regular basis,

> CHD-SSI-21: *"I think there will be a lot less roads, they will be converted into something else, like a bike kind of road, instead of having a cycle path on the side you have a little car park, instead, so things would be like swapped around" (girl, aged 12-16)*
> PC-FG1: *"If the streets were better designed and included cycle ways, they are not always continuous and they should be in 100% of the roads. I think more people would cycle, even children could go on them"* (female parent)
> PC-FG2: *"If there were more cycle lanes on the roads and I would feel safe using them I would definitely cycle on a regular basis"* (female parent)

They refer mainly to two types of facilities for cycling: 'cycle lanes' 'marked' on roads and shared with other vehicles; and to 'cycle ways' or 'cycle paths' as systems of cycle routes physically separated, with its own traffic control system and to be exclusively used by cyclists (Figure 7.4).



Proposal for a cycle path system that replaces current roads for vehicles



Proposal for a bike lane system that appeals to a range of abilities: five cycle lanes as an alternative to only one road for vehicles

Figure 7.4: 'Cycle paths' and 'Bike lane system' to replace current roads (Drawings from children aged 12-16)

Cycle lanes

Children, parents and carers suggested the provision of an increase in the number of 'continuous', 'dedicated' and 'well-marked' cycle lanes to be 'squeezed' into 100% existing roads or 'added' along pavements,

> CHA-AG4: *"cyclists could have extra lanes on the roads"* (boy, aged 7-11)
> CHB-AG5: *"continuous cycle lanes along the pavements"* (boy, aged 12-16)
> PC-SSI-13: *"would have to be more cycle lanes, roads would have to be adapted more for cyclists"* (female parent)
> PC-SSI-20: *"I would like a well-marked road where I could cycle and you are not disrupting people walking on the pavements"* (female parent)

According to children and parents, a 'shift' in the number of people cycling, will mean fewer cars will be used, therefore, they perceive that roads that are currently used by vehicles will be adapted with numerous cycle lanes in a sort of 'bike lane system'. Such systems will appeal to a range of abilities, i.e., there will be a 'fast lane', a 'leisure lane', etc., 'like in a swimming pool'.

> CHC-AG1: *"we've got two bike lanes. We've got a fast lane and a leisure lane. Because a lot of streets, like busy roads, you don't have many bicycle lanes so you have to like try and squeeze like down the side of a bus. So we've given them a lot more room. And people who just want to out for just a nice little ride can"* (boy, aged 12-16)
> CHC-AG1: *"new bike lane system on roads, which allows extra room for two lanes, one to be known as 'the fast lane' and the other being 'the leisure lane' to appeal to a range of abilities"* (girl, aged 12-16)
> PC-SSI-12: *"I sense a lot of slow moving cyclists and pedestrians, therefore the road space should also allow for quicker travel"* (male parent)

Cycle ways and cycle paths

Children, parents and carers gave suggestions for a segregated system of cycle ways and cycle paths to be exclusively used by cyclists and physically 'separated' from motor traffic, similar to other countries' cycling systems such as Holland, Brussels, etc. They consider that the design of a segregated cycle system would encourage them and their children to cycle regularly as they consider it safer than only 'marked' cycle lanes on roads,

> CHA-AG4: *"If cars and cycles had different path ways"* (boy, aged 7-11)
> CHB-AG3: *"I would also like that there are more separated cycle ways because I rather cycle on the pavement that next to the cars on the roads"* (girl, aged 12-16)
> PC-SSI-11: *"the best to keep them safe [to children] it would be for them to have a cycle line on the side of the pavement, separated from the road"* (male parent)
> PC-FG2: *"I also visited Amsterdam, I spent one day cycling through the city and it was great. They have cycle ways, only for cycles, separated from cars, with green lights and everything. I hired a bike, it was cheap I saw many people cycling, many families cycling*

> *together, I saw a mother cycling with three children, it was amazing! I enjoyed it a lot. Over there the cycles have their own roads, they are completely separated from the car roads"* (female parent)

Wider and sheltered facilities

Children and parents consider that cycle ways and cycle paths should be 'wider' to provide them with the chance to cycle accompanied by other people or sufficient space for the possibility to have bigger bikes, i.e., 'monster bikes' or 'electric bikes' with capacity for numerous people.

> PC-SSI-17: *"wider and separated cycle ways for children and families around schools, so children don't have to cycle on the pavement or on the road"* (male parent)
> PC-SSI-16: *"If there was had a bigger, wider path, they could cycle with me while I'm cycling"* (female parent)
> CHD-SSI-14: *"Electric bikes, bikes for say about 6 people, cycles you know like monster trucks? But just like Monster bikes! So it's like two wheels but massive! Roads would have to be wider"* (boy, aged 12-16)

In addition, children gave suggestions for sheltered cycling facilities that protect from extreme weather, i.e. 'sheltered cycle paths', 'sheltered cycle lanes' and a 'covered' cycle way'

> CHB-AG3: *"'Rocket Bike' in a covered cycle way: the drawing shows a bike lane separated from the road"* (boy, aged 12-16)
> CHB-AG3: *"ideas to encourage and to help overcome problems, for example, sheltered cycle paths for bad weather, like a subway"* (boy, aged 12-16)
> CHB-AG4: *"sheltered cycle lanes so you don't get rain on when you are cycling"* (girl, aged 12-16)

Well-connected

Children, parents and carers suggest getting better connection of cycling routes, for example, through the construction of bridges over roads or canals,

> CHB-AG4: *"building bridges for cyclists over roads"* (boy, aged 12-16)
> PC-FG1: *"better links of bridges for cyclists to travel across canals"* (female parent).

Secure and sheltered storage

Children, parents and carers consider that secure and sheltered storage for cycles such as cycle parking, racks, and stands should be protected from weather and put everywhere, i.e., at home, around schools, shops, supermarkets, train stations etc. Therefore, they

suggest that these should be available at the end of every journey to encourage people into active travel,

> CHA-AG4: *"here is my house, and here Aldi and it has bike and scooter lockers so if someone wants to go there by scooter, and then the shop where I can get ice creams from after school, some bike and scooter lockers there, so people can go on scooter and lock their scooter"* (girl, aged 7-11)
> CHC-AG1: *"sheltered bike parking and safer bike locks"* (boy, aged 12-16)
> PC-SSI-12: *"there would be more and safer cycle storage and it would be sheltered from the elements"* (male parent)
> PC-SSI-10: *"If you are going to encourage people to ride bikes you've got to have somewhere for them to go with them. If you are presenting the opportunity of a journey, once you get there, you've got to have some way of securing the thing that you travelled on"* (male parent)

Cycling speed limits and cycling traffic control

Children, parents and carers give suggestions for speed limits for bikes and other public transport vehicles 'near main roads' and 'busy roads'. In addition, they mention the need of a separated system of 'green lights' for cyclists on the cycle ways and other traffic calming features such as 'speed bumps' in order to make the transport infrastructure more cycle friendly. They also give suggestions for cycling restrictions, such as not allowing cycles on pavements,

> CHA-AG4: *"speed limit for bikes and cars altogether because the bikes can be too fast as well"* (boy, aged 7-11)
> CHB-AG3: *"make speed bumps a little higher"* (girl, 12-16)
> CHA-AG2: *"you're not allowed to go on your bike on the pavement any more" (girl, aged 7-11)*
> PC-SSI-13: *"must be [cycle speed] restrictions, obviously"* (female parent)
> PC-FG2: *"If cars and cycles had different path ways, with their own green lights"* (female parent)

Community hiring system

Children, parents and carers suggest the authorities should provide a 'massive' but 'cheap and 'easy' hiring system that is available 'anytime', 'anywhere' in communities of every city and town. The 'community hiring system', or 'pick and drop bike system' would have cycles available outside markets, bus, train and tram stations, and schools, etc. and it would be similar to other systems that are currently available in other countries.

> CHD-SSI-21: *"also, if there were cycles available to hire in the cities so everybody can use them, massively"* (girl, aged 12-16)
> CHB-AG5: *"that you can find bicycles around the town and in all the cities and towns, anytime, anywhere. Like a pick and drop system or hire a bike system. You will have to*

register to the system and if you won't return the bike they will know where to look for you or charge you for the value of the cycle if you damage it" (boy, aged 12-16)
PC-SSI-18: *"I think if we cannot use the car, the authorities should provide us with a hire bicycle system for which you pay about 20 pence or use a card on a machine and you can take the bicycle and go and return it somewhere else. There is a system like that in Belgium"* (female parent)

Children particularly consider that a 'pick and drop' bike system should be available at school and that this should be inexpensive.

CHA-AG4: *"pick and drop bike out of schools"* (boy, aged 7-11)
CHA-AG4: *"bicycle that you can pick and left for few pennies"* (boy, aged 7-11)

Also, parents and carers consider that the system has to be flexible and provide choice of bikes for children, families cycling with numerous children or small children such as trailers, seats, etc,

PC-SSI-16: *"that would be excellent, especially if they hire also children's bikes. We wouldn't have to worry about that!"* (female parent)
PC-SSI-12: *"regarding cycles, I think you could hire more items, like the trailers, the seats"* (male parent)

However, other children and parents consider that 'owning' a bike is better than 'hiring' one.

CHA-AG5: *"if you don't have a bike you could hire it but I would like to keep mine at home"* (boy, aged 7-11)
PC-SSI-12: *"I'm too used to having my own bike, and the beauty of having a cycling as my main mode is that I've got a bike near to me at all times, so I don't really mind about cycle-hire systems"* (male parent)

Bike doctor service

Children, parents and carers propose having access to a cycle maintenance service such as the 'bike doctor' to be provided locally in neighbourhoods and schools, in order to help people and children with small bike repairs. This is a way to overcome the maintenance aspect that may emerge with cycling regularly,

CHA-AG4: *"bike Doctor at school"* (boy, aged 7-11)
PC-SSI-13: *"regarding cycles, I think is the maintenance aspect that needs to be sorted out. Maybe with some local cycle shops that can help you out with any bike problems?* (female parent)
PC-SSI-19: *"they would also have to have someone to repair children's bikes at school, like a first aid service for bikes"* (female parent)

Helmets not required

Children and parents suggest that regarding 'helmet' use, this is not going to be needed in future, as the probability of car accidents will be minimal,

> CHA-AG6*: "no helmets because you don't need them if everybody else is cycling, there won't be cars to crash you"* (girl, aged 7-11)
> PC-SSI-12: *"I think cyclists wouldn't need to be wearing helmets as it would be a near-traffic free environment and that would make me happy as I feel strongly that the pro-helmet lobby overstates the advantages of wearing a helmet. If they ever made it compulsory, it would be a major deterrent to me cycling"* (male parent)

7.3.2 Facilities for walking

Children, parents and carers suggest improvements in certain aspects that facilitate walking, i.e., improving the provision of footways, connection and safety, and other aspects such as street lighting, wayfinding and seating (Figure 7.5).

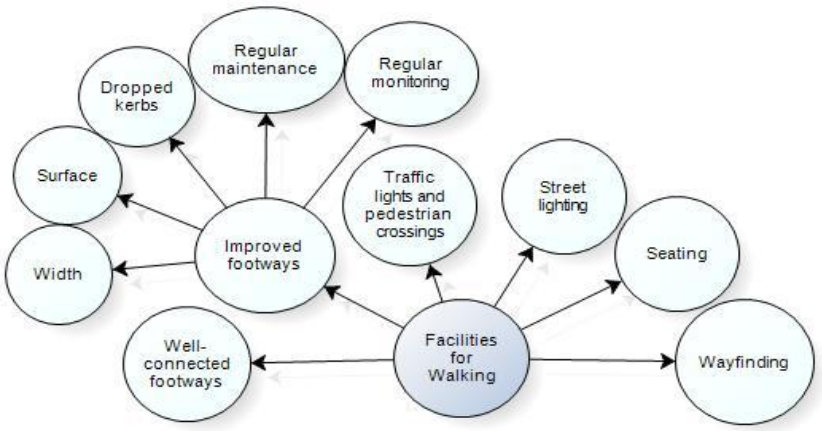


Figure 7.5: Facilities for walking

Well-connected footways

Children, parents and carers suggest getting better connection of footways, i.e., by building bridges for pedestrians over green water canals or opening gated alleyways,

> CHB-AG4: *"bridge over a green water canal"* (boy, aged 12-16)
> PC-SSI-18: *"we need an extra bridge to cross the river to go to school because at the moment, there is a bridge but it is a long way to go"* (female parent)

Improved footways

Children, parents and carers would like wider and better footways, to be able to walk in the company of other people. In this regard, parents feel that a wide footway would benefit active travel, especially with children,

> CHB-AG4: *"a nice and wide walkway"* (boy, aged 12-16)
> CHA-AG3: *"wider footways allowing more room for cycling and walking with friends"* (girl, aged 7-11)
> PC-SSI-16: *"I think I would like to see more in terms of design of the footway, because at the moment, the roads are always wider and the pavements are so narrow, sometimes they have just enough size for one person to walk, and you are walking with children"* (female parent)

They also express their wishes for more footways 'away from' the traffic roads, and for more footways surrounded by greenery,

> PC-FG1: *"more areas near or away from the road to walk on"* (female parent)
> PC-SSI-08: *"especial areas for people to walk on, like free road areas, and greener areas as well"* (female parent).

In addition, parents make suggestions for dropped kerbs to benefit people pushing prams, trolleys or using wheelchairs, electric scooters, etc. As for footway material, they suggest 'smooth' and 'safe' surfaces that work well in all weather conditions. In this regard, children and parents show their preference for 'tarmac' or 'grass' to walk on, and their dislike for cobbled surfaces.

> CHB-AG4: *"smooth roads"* (boy, aged 12-16)
> CHB-AG4: *"grass to walk on"* (boy, aged 12-16)
> CHD-SSI-22: *"I think you could just make it like the pavement (tarmac) or anything different, because with the other (cobble stone surface) I fell over and I hurt myself badly"* (boy, aged 7-11)
> PC-SSI-06: *"with regards to walking just make the streets pavements more even"* (male parent)
> PC-SSI-17*: "having dropped kerbs would make a difference"* (male parent)

In terms of maintenance, children and parents suggest keeping the footways clean, tidy, clear etc. and monitoring its maintenance regularly, i.e., 'ensure' there is 'no clutter' or 'obstructions', fixing what is broken, etc. Also, they mention improving the provision of bins, etc.

> CHC-AG1: *"clean- just make the footways cleaner, clear and tidy, clean from litter and dog's or pigeon's waste – no clutter or obstructions such as bins"* (girl, aged 12-16)
> CHC-AG1: *"ensure that a clean, maintainable environment is created for example litter bins*

easy to come across and patrols to keep all areas tidy and ensure that litter is not dropped from walkers" (girl, aged 12-16)
PC-FG1: *"paths fixed earlier when broken, clean and tidy paths"* (female parent)

Traffic lights and pedestrian crossings

Children, parents and carers consider that the presence of more traffic lights and wardens near main roads and around schools would increase safety for all people, especially for children.

CHA-AG4: *"here is a main road and three traffic lights, so people can cross more safely" (boy, aged 7-11)*
PC-SSI-17: *"more traffic lights near main roads and lollipop men around schools"* (male parent)

In addition, they would like the presence of more 'zebra' and controlled pedestrian crossings of the 'pelican' type

CHB-AG2: *"speed bumps and put in zebra crossing for pedestrians"* (boy, aged 12-16)
PC-SSI-06*: "I think there should be more crossings, and I think the zebra crossings aren't much good because when you are using them people try to pass you anyway, so pelican crossings instead"* (male parent)

Street lighting

Children, parents and carers' views are that it is essential to have more and better lighting provision on main roads, back streets, alleyways, etc., to improve the conditions not only for walkers but for cyclists as well. In this regard, children suggest the streetlights to be powered by solar panels.

PC-SSI-17: *"better lighting especially on side road, shortcuts etc. around schools"* (male parent)
CHB-AG4: *"solar paneled street lights"* (boy aged 12-16)
CHD-SSI-22: *"they should put some lights there [alleyways] like some floodlights. I don't know what they are like but my friend says they are really good lights"* (boy, aged 7-11)
CHC-AG1: *"we've got on our street, we've got, the houses are all solar panels on top which any reserved energy is to power the street-lamps at night for when they're not generating electricity" (boy, aged 12-16)*

Seating

Children and parents suggest providing seating and resting spots along streets or on the side of the walking paths to rest,

PC-FG1: *"put seats along the street to rest"* (female parent)
PC-FG1: *"resting spots on the side of the paths"* (female parent)

Wayfinding

Children, parents and carers suggest better provision of signage with 'good' directions to the places they want to go, indicating clearly pedestrianised paths. In addition, they suggest having wardens to help to find addresses when needed,

CHB-AG2: *"good directions where you want to go"* (girl, aged 12-16)
PC-FG1: *"clear indicated pedestrian paths"* (female parent)
PC-FG1: *"to have wardens to help to find an address if you are lost"* (female parent).

7.3.3 A green and pleasant environment

A green and pleasant environment includes 'less or no cars', 'nice parks', more 'areas to walk on', 'greener', 'distinctive roads' and 'nice and interesting views and surroundings' (Figure 7.6).

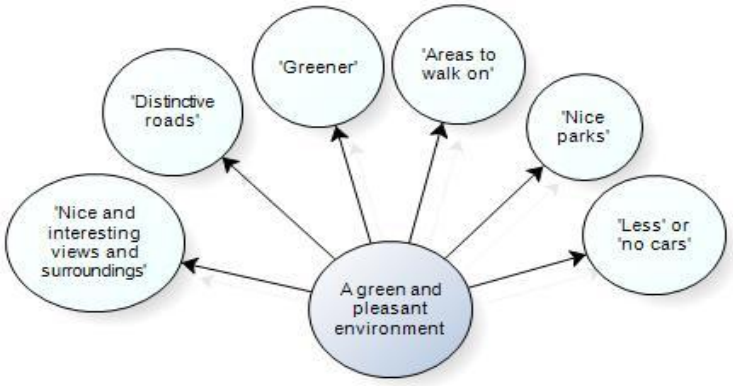


Figure 7.6: A green and pleasant environment

Children, parents and carers expressed their wishes for a more attractive and 'pleasant environment'. In this environment, there are 'less' or 'no cars'; and therefore 'there is no danger' and instead of roads for cars, they suggest 'areas to walk on' and more 'nice parks' nearby to walk or cycle through on the way to school or other places,

CHA-AG3: *"I've drawn a street with less cars because they could just walk everywhere"* (girl, aged 7-11)
CHA-AG5: *"now the kids are safe to play in the park and the people is happy walking, and the roads have disappeared, where the road was before there is a big park"* (boy, aged 7-11)

PC-SSI-20: *"designing a friendly route to school which includes, probably, going through a park where they can have a bit of adventure on the way, like crossing different types of paths or somehow calling their attention, encouraging, attracting them to use the park"* (female parent)

Children and parents consider important the 'views and surroundings on the route' in order to opt for active travel and express their vision for a 'pleasant' physical environment with more 'interesting routes' and 'interesting places to see' whilst walking or cycling. They suggest a 'greener' physical environment to walk on with 'more nature around'; 'lots of greenery and flowers'; 'trees'; 'plants instead of walls', clean, 'no litter' etc.,

PC-FG1: *"the views and surrounding on route to the place you are going to"* (female parent)
CHB-AG2: *'interesting places to see, when you are cycling"* (boy, aged 12-16)
CHD-SSI-22: *"they should put some plants instead of the walls"* (boy, aged 7-11)
CHA-AG4: *"I have put some trees because it needs more nature around and not just no-trees and it looks more pretty"* (boy, aged 7-11).

In addition, there are suggestions made by children for 'distinctive roads'; where people can have a safe but 'thrilling walking and cycling experience' or 'a bit of an adventure on the way',

CHB-AG2*: "a thrilling walking and cycling experience for walking and cycling in my neighbourhood that involves a very distinctive road"* (boy, aged 12-16)

7.3.4 Changes in homes and households

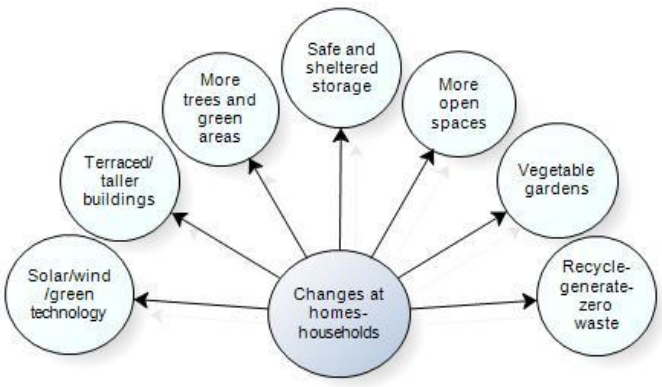


Figure 7.7: Changes in homes and households

Children, parents and carers believe in the benefits of increasing density of housing, for example, by building more terraced houses that 'share heat' or tall buildings, with bigger energy-efficient windows to improve the amount of interior light. In addition, they consider

these would be self sufficient, e.g., generating their own electricity by the use of solar panels and wind turbines on the roof. Any residual energy would be used to power street lamps or would be sold to electrical companies (Figure 7.8). In addition, wind farms would be available in neighbourhoods.

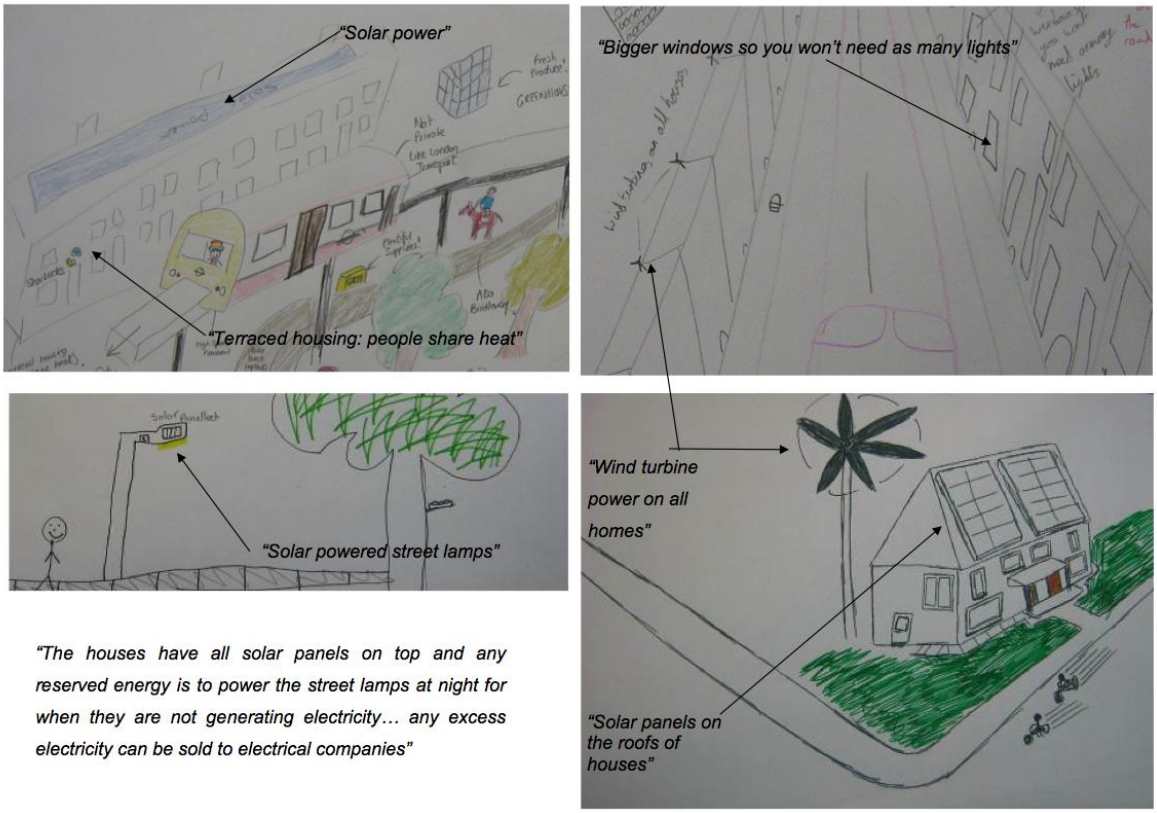


Figure 7.8: Changes in homes and households: terraced houses, solar panels and wind turbine power (Drawings from children aged 12-16)

According to children and parents, every building would have safe and sheltered places to store bikes, scooters, etc.

> CHB-AG3: *"its seems safe to store cycles outside homes"* (boy, aged 12-16)
> CHA-AG5: *"make special lockers for scooters, a safe place to keep scooters and bikes"* (girl, aged 7-11)
> PC-SSI-12: *"there would be more and safer cycle storage and it would be sheltered from the elements"* (male parent)
> PC-SSI-12: *"there might not be a need for garages for cars anymore, but households will still need outside storage for bikes, trailers etc."* (male parent)

In order to improve neighbourhood aesthetics, people's health and also to improve sustainability of local communities, there would be trees and greenery at the front and at the back of buildings, and more open spaces where people could exercise. In addition, the communities would have the ability to generate their own food through vegetable gardens where people can produce and sell 'fresh healthy food' (Figure 7.9). Finally, there would be a tendency to recycle and to produce 'zero waste'.

Figure 7.9: Changes in homes and households: green areas and trees at front and back of homes (Drawings from children aged 12-16)

CHA-AG4: *"lots of green areas at the front and at the back of houses"* (boy, aged 7-11)
CHB-AG4: *"we should be able to plant food crops on porches, backyards, gardens and empty plots. Provide some plots to produce fruits to sell at cheaper prices"* (boy, aged 12-16)
PC-SSI-14: *"horticulture clubs. To produce all different kinds of vegetables… its important because its fresh, healthy food and provide jobs for the people. They would be lower in prices. We need to learn to be more self-reliant"* (female parent)
CHB-AG5*: "recycle, generate, zero waste"* (boy, aged 12-16)

7.3.5 Changes at school

Changes at school include 'lockers, bike stands and sheds', 'cycle routes' and 'bike use system' (Figure 7.10).

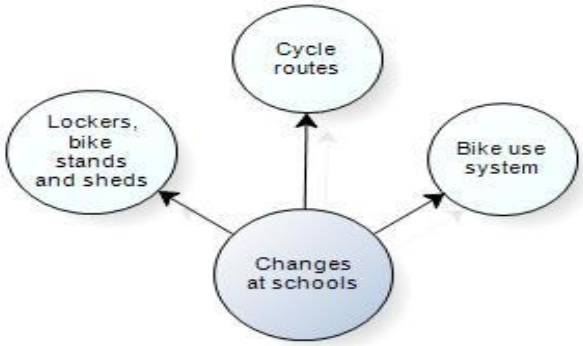


Figure 7.10: Changes at school

Children, parents and carers consider that schools should have 'more', 'bigger' and 'safer' places to secure and keep bikes and related equipment as a way to encourage cycling not only to children but to parents as well. Those 'safer' places include lockers, stands and sheds.

> CHA-AG4: *"more places to keep bikes safe around schools"* (boy, aged 7-11)
> CHA-AG4: *"we will need a bigger bike shed to be able to have a place to keep all the bikes at school, it would need to be bigger. At the moment we have space for just for 5 or 6 bikes"* (boy, aged 7-11)
> PC-SSI-19: *"if they invest in making more lockers, stands, sheds that would be a way to motivate and stimulate children to cycle to school"* (female parent)

Children, parents and carers consider that such places should be easy to access by them at anytime:

> CHD-SSI-21*: "keep the gates open, so I can get out with my bike, or a place at school next to the car park where bikes can get locked up"* (girl, aged 12-16)
> PC-SSI-19: *"yes, maybe a new system of new locks because as mums, if we have to be carrying the key for the cycle locks, sometimes you forget to bring it back in the afternoon or you just lose it. The school should have a lock system in place that allows them to keep the cycle, maybe a password"* (female parent)

In addition, children and parents wish for cycle routes in the neighbourhoods around schools, and for a 'pick and drop' bike system available at school, as presented previously in this chapter in section 7.3.1.

7.3.6 Distance and facilities

Distance and facilities include: *'reduce trip distances'*, *'provide diverse facilities near homes*' *'walk-in services'*, *'24 hours'*, *'extended times'*, and *'free local deliveries'* (Figure 7.11).

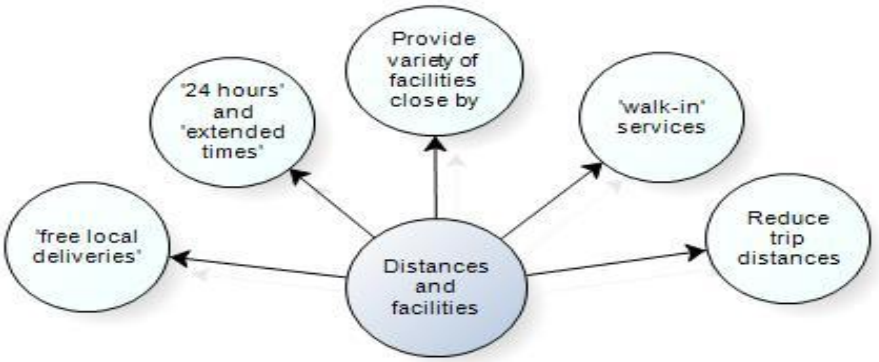


Figure 7.11: Distance and facilities

Children, parents and carers consider that reducing trip distances by providing a variety of facilities (such as hospitals, schools, parks, gyms, nurseries, etc.) within short walking distances from homes and by re-invigorating local shops, markets, independent traders, etc. will facilitate cycling or walking,

> PC-FG2: *"I imagine that in the future everything, the hospital, the shops and schools should be nearer to people's homes so we don't have to drive cars"* (female parent)
> PC-SSI-12*: "I live near a small market town and what I would like to see is the maintaining and re-invigoration of independent traders"* (male parent)
> PC-SSI-19: *"there should be good markets near home, so we can walk to them and carry our things using a trolley because it would be difficult to carry all the shopping in a cycle, or imagine how would you carry ten bags on your bike?"* (female parent)
> PC-SSI-18: *"like in Google, that is like a small community where they have everything on hand, near work, such as nursery, gym, school, etc."* (female parent)

Such facilities would work around the needs of people offering *'walk-in'* type services (hospitals); have *'24 hours'* or *'extended times'* availability or providing *'free'* local *'deliveries'* in the case of shops, supermarkets, etc.

> CHA-AG5: *"there are no cars; so you can walk to the hospital there. If someone trips up there and falls and bangs his head he has to walk to go to the hospital"* (boy, aged 7-11)
> CHC-AG1: *"walking-in facilities, shops 24 hours, extended opening times and local free delivery"* (boy, aged 12-16)
> PC-SSI-13*: "extended opening times for shops, leisure centres for swimming lessons, the vet, local business that deliver for free, all of it would be good if I was working full time"* (female parent)

PC-SSI-19: *"supermarkets would have to do deliveries, because I've seen cycles that have a little basket or an attachment to carry some shopping but it would be for a small shopping only. So it would still be better to do your shopping and the shops would deliver it to your home later"* (female parent)

Children mentioned, in particular, a variety of sweet shops, flower shops, parks, ice cream shops and cake shops as facilities they would like to see within walking distance,

CHA-AG4: *"here is my house, and here Aldi and it has bike and scooter lockers so if someone wants to go there by scooter, and then the shop where I can get ice creams from after school, some bike and scooter lockers there, so people can go on scooter and lock their scooter. Costa café, we go there on Thursdays after school just before music class to get hot chocolate. And there is supposed to be a shop called Airy Fairy cup cake banquet, and you can get a lot of cupcakes from there with different like peter pan, and things like that"* (girl, aged 7-11)
CHB-AG3*: "sweets! A sweet shop!"* (boy, aged 12-16)
CHA-AG5: *"there is a flower shop, the people that sells flowers they pick them from the park and they can sell"* (girl, aged 7-11)

With regards to distance to work, the optimum distance, either by walking, cycling or using public transport, is considered to be within half an hour,

PC-FG1: *"route to work would take no more than 30 minutes"* (female parent)

7.3.7 Overcoming the weather

Overcoming the weather includes *'ready and available equipment'* and *'sheltered facilities'* (Figure 7.12).

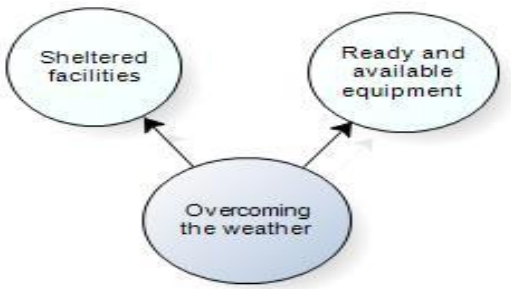


Figure 7.12: Overcoming the weather

Children, parents and carers provided ideas to help overcome issues with bad weather, which include ideas for having equipment ready and available whenever possible, for example, if people could buy waterproof gear such as 'impermeable or wellington boots' in most of the shops,

PC-FG2: "I remember that when I was visiting Orlando (USA) and it was raining season, I could get very nice waterproof gear easily in most of the shops. That is a great idea because if here it is raining that would be the only way I could leave home" (female parent).

Other ideas were suggested, such as having sheltered facilities that protect active travelers from extreme weather, for example, *'sheltered cycle paths'* and *'sheltered cycle lanes'*,

CHB-AG4: "sheltered cycle paths for bad weather, like a subway" (boy, aged 12-16)
CHB-AG5: "sheltered cycle lanes so you don't get rain on when you are cycling" (boy, aged 12-16)

7.4 Reluctant to change

Reluctant to change comprises children and parents perceptions of car dependency: *'too depending upon a car'* and in addition, it encompasses their *'pessimistic'* perceptions about the future (Figure 7.13),

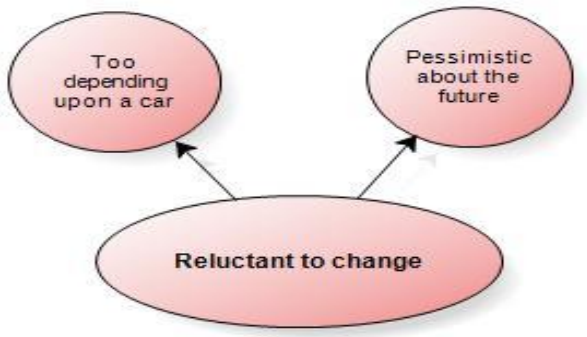


Figure 7.13: Reluctance to change

7.4.1 Too dependent upon a car

Parents and carers in this group consider that *'are too dependent upon a car'* and define themselves as a group that *"like doing things their own way and want to carry on their own with their own routines and activities"*, therefore it would be difficult to change their attitudes,

PC-SSI-25: *"we are way too depending upon a car right now*" (male parent)

PC-SSI-16: *"we are from a country that is relying on cars; so, it is quite difficult for us to change the mentality of not using a car"* (female parent)
PC-SSI-10: *"I consider that it is about attitude, because people like doing things their own way, they want to carry on with their own routines and activities"* (male parent)

The perceptions of car dependence also reflects their *'fears of losing social status'*, their perceptions that other transport modes *'would not be suitable to their current needs'*, and their perceptions that *'environmental arguments'* that aim to discourage car use would not work in their case (Figure 7.14).

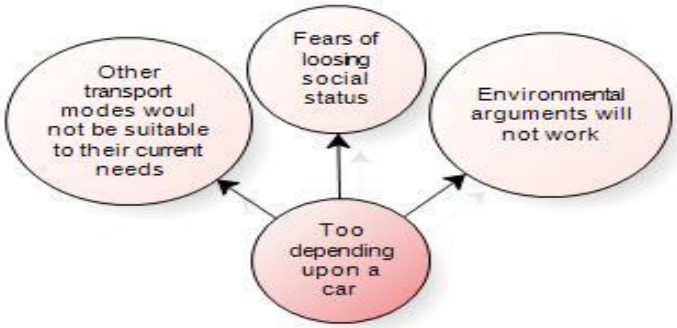


Figure 7.14: Too dependent upon a car

Fears of losing social status

Parents and carers feel that switching driving for cycling would be seen as a 'loss' of social status that the car provides,

PC-SSI-15: "I also think that there are people out there that think that going back to cycling is not a good thing because we are so used to have a car. A car gives you status" (female parent)
PC-SSI-15: "I can always go back to cycling, but I imagine that if my friends see me cycling at this stage of my life they are going to think there is something wrong with me" (female parent).

Other transport modes would not be suitable to their current needs

People in this group consider that other modes of transport such as buses or trains would not be suitable to their current needs, in terms of the system's costs (prices getting higher) and convenience (issues with connections or timetables) therefore, their car would still be needed and they would not like to give it up.

PC-SSI-20: "as I would have to take more than one means of transport, it would make it extremely expensive, plus, bus and train timetables are not suitable for me. I need the car to be able to do it" (female parent)
PC- SSI-07: "changes in the prices they charge, probably, higher and higher" (male parent)

PC-FG2: "it is difficult for me to consider a different option for transport than my car because the place I live hasn't a good public transport system" (female parent)

In addition, parents and carers consider that if presented with the option of transportation mainly by public transport, walking or cycling, their lives would be more complicated and even impossible, as they wouldn't be able to cope without a car due to their work commitments, the distances involved, children, etc.

PC-SSI-20: "it would make things more difficult, of course, because I wouldn't be able to work as I do at the moment, for the kind of distances I need to cover, as I have to go to the companies where I provide the tuition that are normally a long way away and that is why I use the car. If I was going to use the bus or the train, I wouldn't be able to do it on time" (female parent)
PC-FG2: "I think that in old times people used to live near to the work place, now that is not the case. People has to travel more to go to their works, so, I think is difficult to stop using vehicles" (female parent)

Even though children from this group were keen to talk about walking and cycling, they thought it was important to have a car and declared feelings of sadness if by any reason they stopped having access to a car anymore, because they perceived that the car would be needed, for example, by their parents to go to work, transport other children in the family or to go long distances, on long trips, etc.

CHA-AG2: "mum's work is delivery so she would miss it. She is a pharmacist" (girl, aged 7-11)
CHA-AG3: "I would miss the car because we go on holiday in the car in the summer and it is a long way!" (girl, aged 7-11)

Environmental arguments will not work

Parents and carers belonging to this group consider that arguments centered on the environmental benefits of car reduction would not work in their case and that the only way to discourage them from carrying on using their cars would be through money, that is increasing the prices of petrol and imposing taxes,

PC-SSI-10: "you are told not to use the car because it pollutes the environment but no one cares really!" (male parent)
*PC-SSI-20: It is difficult to think in the kind of restrictions that would stop me using the car on regular basis, I'm not sure what kind of imposition would work, maybe some taxes (*female parent).

7.4.2 Pessimistic about the future

Being pessimistic about the future included the perceptions that 'traffic will get worse', however, it will become 'techy and green' i.e. hi-tech (Figure 7. 15).

Figure 7.15: Pessimistic about the future

Traffic will get worse

Children thought that the number of cars and the infrastructure for it will increase in the future, but although cycling will also increase, there will be less space on the roads to do it.

> CHD-SSI-21: *"in thirty years probably there won't be much difference; it would probably be more cars, twice as many cars. Unfortunately the roads will carry on being built and will get full of cars, and although more people could be cycling, it will be less space for them in the roads"* (girl, aged 12-16)

Similarly, parents and carers considered that current transport issues would become worse, as the next generation will be getting more cars and therefore, cities would become literally 'car parks'. In such traffic conditions, walking would be more difficult, and there would not be any space or good conditions for cycling either.

> PC-SSI-08: *"walking it will be harder; if you look at the state of the roads and the amount of traffic they carry… it is unrecognizable to twenty years ago! I think it gradually will get like New York City. The amount of traffic will increase and cities just will become car parks, with less and less space for cycling. I think I'd still use my car (*male parent).

Transport will become 'techy' and 'green'

Parents and carers in this group considered that besides cars, the future of transport will still include public transport, which will be 'more expensive' and 'not sufficient'. However, both cars and public transport will become more 'techy and green'. Regarding cars, they

believe that in the future they will be ‘much smaller’ and will run with ‘alternative forms of energy’ like solar panels, organic oils and therefore be more environmental friendly’,

> PC-FG2: *“by car, but hopefully with a more environmentally friendly fuel and by public transport if it improves” (*female parent)
> PC-SSI-06: *“pretty much the same, but hopefully they will have more of the eco-friendly cars” (*female parent)
> PC-SSI-20: *“cars that will run probably with alternative forms of energy such as solar panels and I don’t know if its going to be cheaper or more expensive” (*female parent)

Children showed that the future of transport would use new technologies, based on more natural sources, instead of petrol i.e., ‘cars powered by solar panels’ (that during the day are powered by solar energy and an electricity back-up for driving at night), ‘electric cars’ and ‘eco-friendly cars’. Children also conceived the possibility of reducing car size and making them ‘stackable’,

> CHD-SSI-20: *“cars would be sort of like smart cars, maybe more one string line... they will be able to get more cars in a lane, maybe make them able to shrink somehow, stack them like shopping cars and make them fit under the other. Like over roads, like a bridge, when you see it in the motorway, sort of roads over roads, you can get anywhere twice as quicker”* (boy, aged 12-16)

In addition, children thought about other technologies to avoid congestion, such as ‘flying cars’, ‘flying hummers’, and ‘flying limousines’ with wings and powered by wind. In order to avoid crashes and therefore increase safety, children mentioned ‘hovercrafts’ and ‘space bouncer cars’ that ‘float’ and keep their balance. Children also contemplated the use of ‘jet packs’ for individual use as a means of transport in the future (Figure 7.16),

> CHA-AG2: *“flying cars with wings and powered by the wind”* (boy, aged 7-11)
> CHA-AG2: *“flying cars and you shouldn’t have to pay for petrol”* (boy, aged 7-11)
> CHD-SSI-26*: “hovercraft, on the road, balances over, no crashes”* (boy, aged 12-16)
> CHD-SSI-18: *“Hovercraft, like in ‘I, robot’, cars just float; they just hover on the ground to avoid congestion, because if you float, you can just fly over other cars, you should be able to park your car under your house or on top of your house”* (boy, aged 12-16)
> CHD-SSI-19: *“hoover cars and jet packs!”* (boy, aged 12-16)

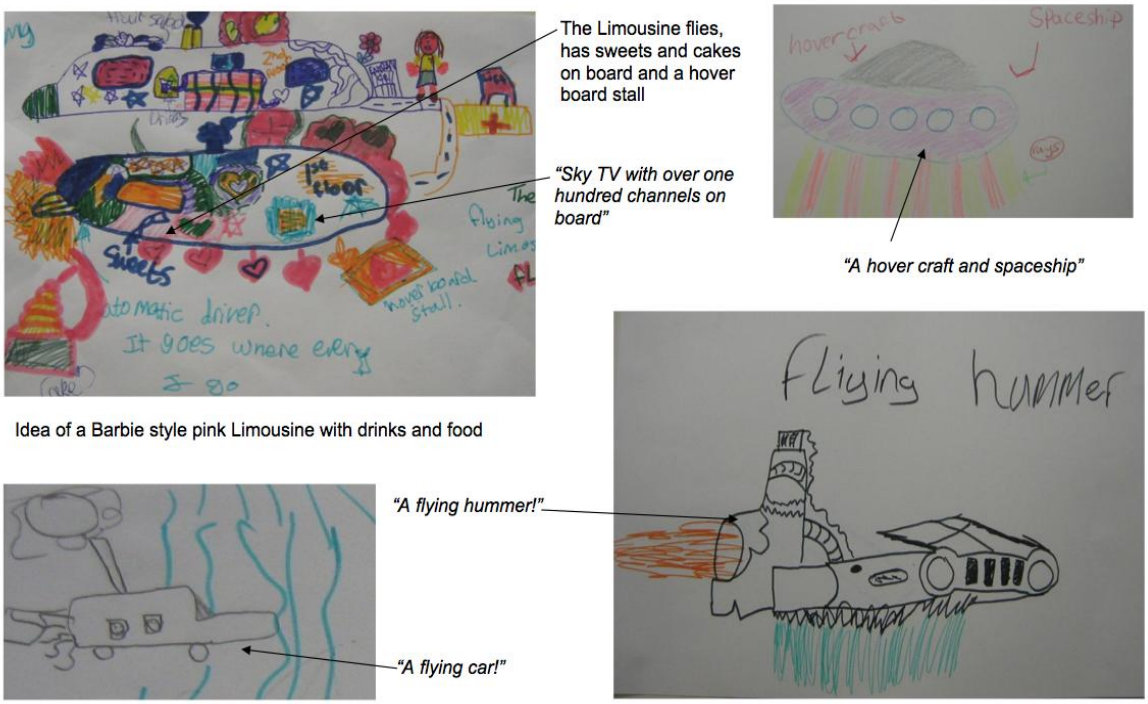


Figure 7.16: Children's ideas about transport in the future (Drawings from children aged 7-11 and 12-16)

7.5 Changes to the approach to active travel

The changes in the approach to active travel include the use of '*incentives', 'promotion', 'education'*, and the *'improvement and innovation of active travel equipment'* (Fig. 7.17).

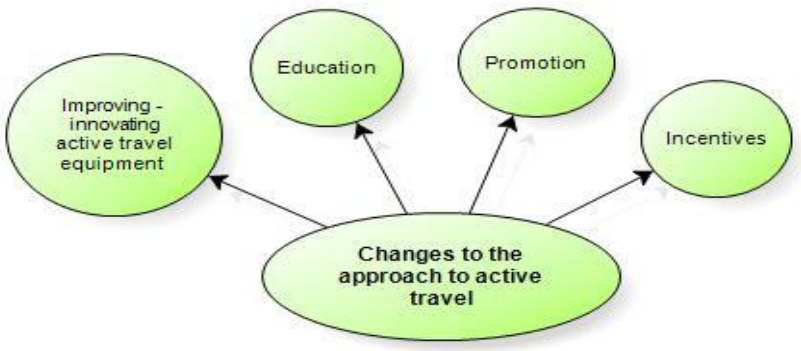


Figure 7.17: Changes to the approach to active travel

7.5.1 Incentives

Children, parents and carers' views are that rewarding people rather than punishing them, i.e. the *'carrot rather than the stick method'* would encourage people to opt for active travel. In this respect, reducing the cost of bikes, or providing them freely, or by credit, and the introduction of a 'cheap' cycle hire system are some of the options mentioned by children, parents and carers alike.

> CHC-AG1: *"carrot rather than the stick method, reward people for being sustainable rather than punish for not, people respond better, more welcoming to it"* (boy, aged 12-16)
> PC-SSI-20: *"also, if there is some kind of incentive in not using the car, so I'm encouraged instead of punished, so that would probably work better in my case and maybe for everybody else"* (female parent)

In terms of incentives, parents suggest a *'tax reduction'* by the government. In addition, there are suggestions to provide 'credit' or to reduce the costs to make it easier to buy or hire a cycle,

> PC-FG1: *"reduce tax to walk"* (female parent)
> PC-SSI-18*: "credit in order to buy bicycles"* (female parent)
> CHB-AG2: *"reduce the cost of bikes"* (boy, aged 12-16)
> CHC-AG1: *"make cycling more accessible by bike hire at cheap prices more widespread across towns and cities perhaps"* (boy, aged 12-16)

Children also suggest *'paying people money' or* '*being paid to walk'* or rewarding them in other ways for *'every mile'* they do. Rewards include *'free repair kits'* or *'free insurance'*, *'store vouchers'* and *'club card systems'*,

> PC-FG1: *"to be paid to walk or reduce tax"* (female parent)
> CHC-AG1: *Maybe even something like a discount card, say for example like a N.U.S. card for example gives you discounts at lots of different shops, or something like along those lines* (girl, aged 12-16)

For example, children aged 12-16 propose a government campaign in which people are paid money for every mile they cycle (Figure 7.18).

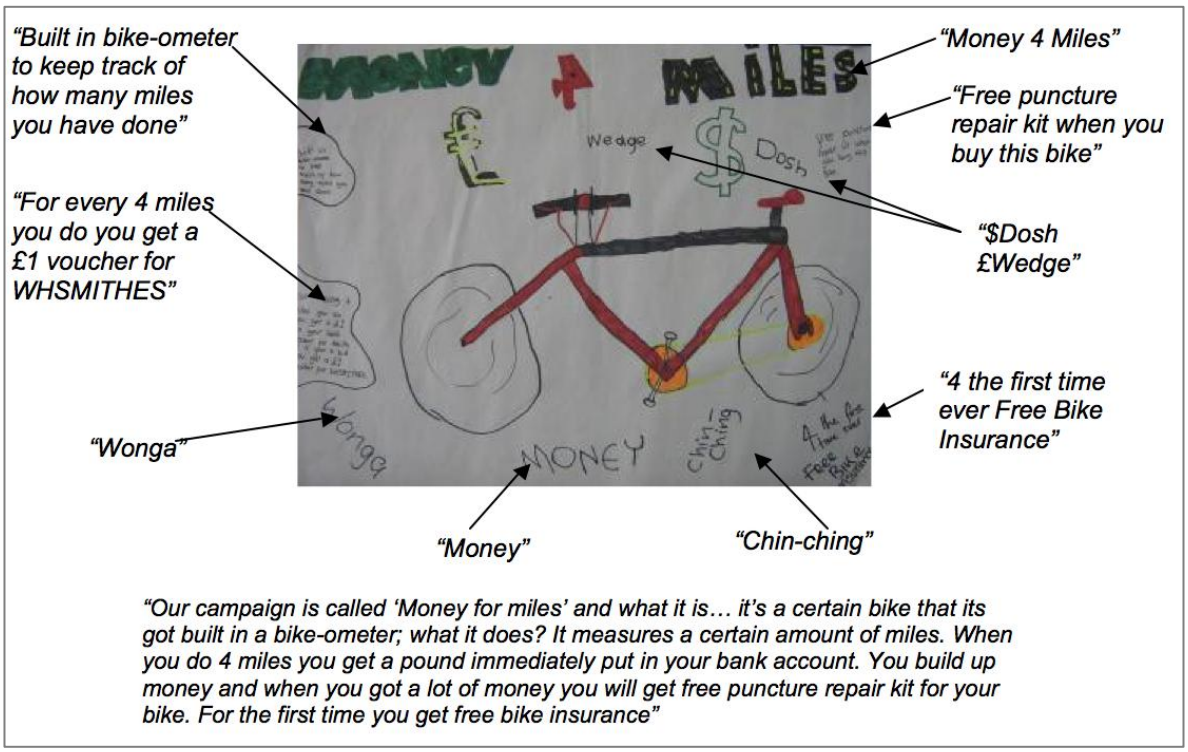


Figure 7.18: Children's ideas about providing incentives to cycle, through campaigns (Drawings from children 12-16)

7.5.2 Promotion

Children, parents and carers alike consider that promoting the positives of active travel in terms of its benefits for *'health and fitness'*, its *'stylish and cool'* image and its *'green tendency'* will encourage them to become more active.

Health and fitness

Parents and carers consider that walking and cycling should be 'encouraged' through campaigns from the authorities, schools and hospitals; and should emphasise the 'health' side benefits of active travel.

> *PC-FG1: Encouragement from authorities, schools, hospitals… to walk and keep healthy*
> *PC-FG2: It is important also to incentive people but campaigns would help*

Children expressed that government should focus on stressing the positives of 'riding and keeping fit' and the negatives of 'driving and keeping fat' encouraging people to walk and cycle through "publicity campaigns' on TV in order to reach a big population (Figure 7.19).

> CHC-AG1: *"I think it is more important to motivate people in a different way such as a good publicity campaign on TV because people watch TV a lot. Therefore if the government wants to motivate people to cycle more it has to be through big publicity campaigns, and not only that, it has to be many things at the same time" (boy, aged 12-16)*

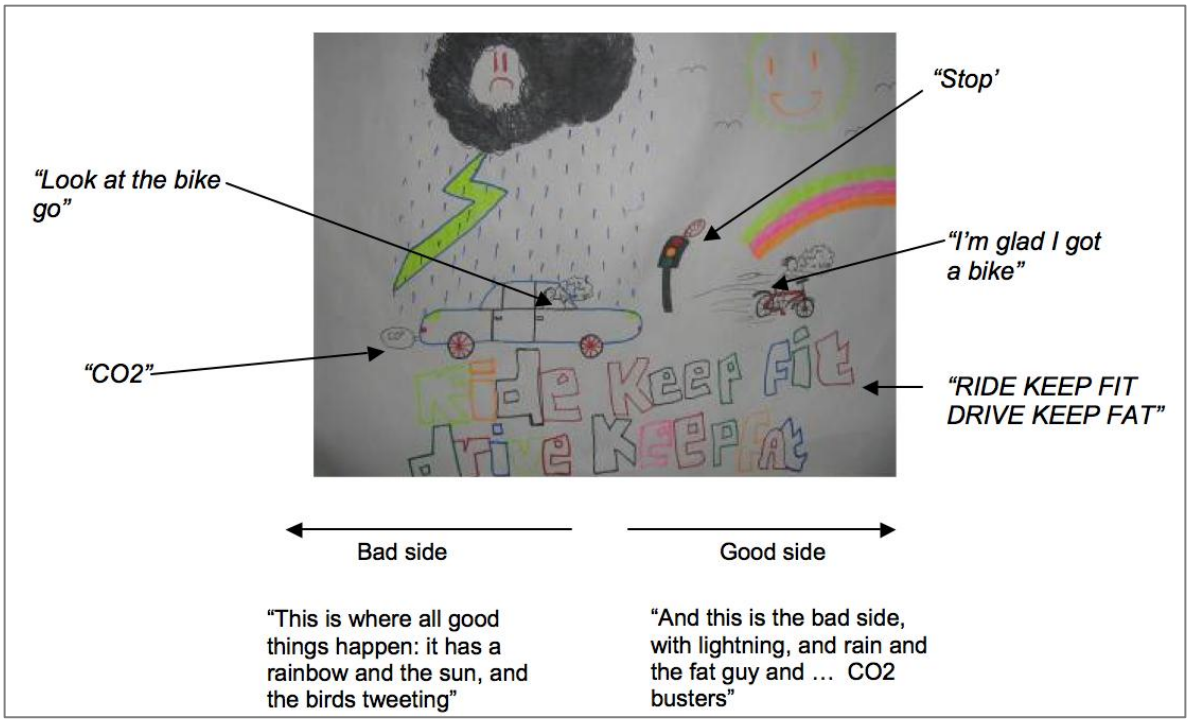


Figure 7.19: Children's ideas about promotion of incentives to cycle, through TV campaigns (Drawings from children 12-16)

Stylish-Cool and green tendency image

Children, especially, consider that image is an important factor to encourage people to walk and cycle and that more global advertising and marketing could promote the image side of active travel as 'stylish', 'cool', and highlight its 'green tendency'. For example, children aged 12-16 proposed a government campaign in which a well known singer arrives by bicycle to an award ceremony, because they consider that when celebrities and other public figures endorse products or activities there are more chances of succeeding (Figure 7.20).

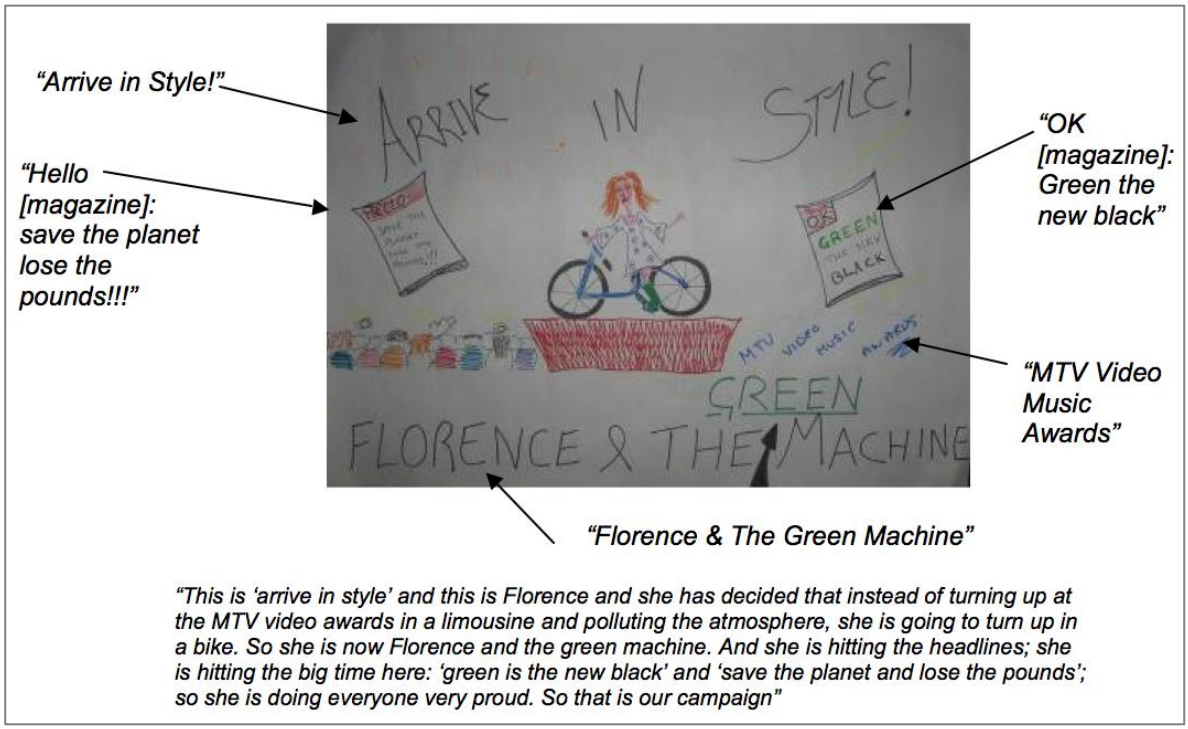


Figure 7.20: Children's ideas about promotion of the 'stylish', 'cool', and 'green tendency' of cycling, through government campaigns (Drawings from children 12-16)

7.5.3 Education

Parents and carers consider that education, in the shape of *'awareness'*, will help shifting 'attitudes' towards other active road users such as cyclists and vulnerable users such as children. In terms of 'training', parents and carers consider that education from earlier in life into all aspects of cycling should be adopted as a government policy in order to put active travel users as the priority on the roads.

> PC-SSI-10: *"just education, showing them that there is an alternative, and the alternative to become the norm"* (male parent)
> PC-SSI-17: *"also, the drivers should be attending awareness training, so hopefully they would change their attitudes towards other road users, especially children cycling"* (male parent)
> PC-SSI-14: *"in addition, it would be nice if the government tries to train people from earlier in life into cycling, so by the time they are adults, they already know the rules, how to change tyres, etc."* (female parent)

In addition, parents and carers consider important that the school initiatives keep educating and training children into the health benefits of active travel,

PC-SSI-20: *"the first thing for the kids is obviously the school initiatives that would encourage them to become more active. I consider that letting children know that walking or cycling etc., is a good thing to do, and at the same time, showing them how to do it is the way to do it"* (female parent).

7.5.4 Improving and innovating active travel equipment

Children, parents and carers expressed their views that the design of the equipment that facilitates active travel would have to be improved or innovated, in terms of its *'comfort, ease and enjoyability'; 'versatility'; 'capacity'; 'innovation' and 'choice'* (Figure 7.21).

Figure 7.21: Changes to the approach to active travel

Comfort, ease and enjoyability

In terms of 'comfort', parents and carers mainly refer to improving the design of cycles to make use more *'comfortable', 'easier' and 'enjoyable'*,

PC-SSI-14: *"cycles designed in such way that you don't feel you are torturing your children by taking them out of your car and moving them in cycles. Make cycling more comfortable, easier and enjoyable, if possible* (female parent)
PC-FG2: *"comfortable bikes"* (female parent).

Parents also suggest that the bikes would be 'foldable' and easier to carry around, especially on public transport. Therefore, 'folding bikes' would be more popular,

PC-FG2: *"the bikes also would have to be easy to carry around, they will be folding bikes; they will be easy to carry in public transport. I have seen many people with folding bikes in London"* (female parent).

Children propose bringing to the outdoors the equipment that facilitates walking and that works well in other environments, e.g. *'travelators'* such as the ones that are of common use in airports, but instead of electricity, they suggest green fuel to power them.

> CHD-SSI-21: *"I think we are all too lazy to walk but it would be great if they have what they got at the airports - travelators? - Yeah, but you are using green fuel to move them"* (girl, aged 12-16)

Versatility

In terms of 'versatility', children, parents and carers refer to improvements to the equipment used for cycling to respond to the weather conditions such as rain, wind, snow, etc;

> PC-SSI-14: *"cycles especially designed thinking about England's weather, protecting people against the rain, the windy conditions, that keep people safe in snowing and in icy conditions, in few words, more versatile cycles"* (female parent).

Therefore, children and parents alike propose that the cycles are equipped with 'roofs', 'drop-down sides', 'air conditioning' and to offer other useful features; such as 'sat nav' 'speakers' or a 'bike-ometer',

> PC-FG2: *"I also thing that the design of bikes would be different, for example: I've seen a man in Macclesfield; he has a bike with a roof!"* (female parent)
> CHC-AG1: *"there could be new bikes with air conditioning!"* (girl, aged 12-16)
> CHB-AG2: *"sat nav for bikes, speakers"* (boy, aged 12-16)
> CHB-AG3: *"certain bike that it's got built in a bike-ometer"* (boy, aged 12-16)
> PC-SSI-15: *"cycles like the 'bicitaxi' as it has a little roof with drop-down sides it can protect you from the rain, or the sun and the seats are comfortable"* (female parent)

Capacity

Children, parents and carers consider that the capacity of bikes should increase, in order to carry a number of people. Therefore, 'tandems'; 'bicitaxis' or 'monsterbikes' types would be available to carry not only entire families, but their shopping and other bulky items at the same time.

> CHB-AG4: *"tandem bikes"* (boy, aged 12-16)
> PC-SSI-14: *"also, especially designed cycles to be carrying one or more children and your shopping, etc."* (female parent)
> PC-SSI-15: *"cycles as the bicitaxi, would be good especially for families, as it can fit many passengers at the same time, and all your shopping if you like"* (female parent)

CHD-SSI-14: *"electric bikes, bikes for say about 6 people, cycles you know like monster trucks? But just like Monster bikes! So it's like two wheels but massive!"* (boy, aged 12-16).

Innovative

Children suggest other walking innovations, such as *'the use of spiderman webs'* for walking faster or items like *'hoover shoes', 'moonboots' and 'moonsocks'*,

CHD-SSI-17: *"for helping you walking faster you can use spiderman webs…people would be wearing hoover shoes, so you switch them on and you are like in the air!*" (boy, aged 12-16)
CHD-SSI-16: *"people would be using gadgets like moonboots, moonsocks"* (girl, aged 12-16).

Regarding cycles, there are a few suggestions from children, parents and carers about adding extra *'electric', 'rocket power'* 'to make them *'electric bikes'* or 'rocket *bikes'* in order to overcome tiredness.

CHD-SSI-13: *"travelling by electric bikes"* (girl, aged 12-16)
PC-SSI-15: *"you can always put a little electric engine on the bikes to help yourself to cycle if you are tired"* (female parent)
CHB-AG2: *"Rocket Bike!!! This is the rocket bike powered by rockets"* (boy, aged 12-16).

Variety and Accessibility

Children and parents consider that in terms of 'variety and accessibility' the idea is providing choice, so equipment such as *'tandems'; 'trailers'; 'accessible bikes'; 'three wheelers'* can be used for many and diverse groups of people; such as families with children, people with disabilities or older people,

CHC-AG1: *"more accessible bikes"* (boy, aged 12-16)
PC-SSI-14: *"also, especially designed cycles to be carrying one or more children and your shopping, etc."* (female parent)
CHC-AG1: *"inclusion of tech o three wheelers for older people. Greater demand will stimulate more products"* (boy, aged 12-16).

7.6 Changes to the social environment

The changes to the social environment include changes in the *'school approach'* to active travel, the creation of *'active travel networks'* and changes in the *'approach at work'* (Figure 7.22).

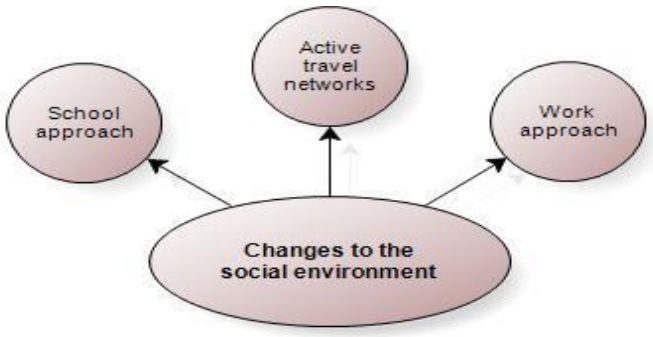


Figure 7.22: Changes to the social environment

7.6.1 Changes to the school approach

Children, parents and carers consider that school has a key role to play in creating a supportive social environment for active travel by providing childcare, training, and by keeping the motivation and encouragement for children and parents alike through diverse initiatives. In addition, in arranging diverse transport options such as school buses and walking and cycling clubs and buses.

> PC-SSI-20: *"there are many things to do, as I said before, policy at schools, so more parents get motivated to walk and cycle with their children or let them walk and cycle to school"* (female parent).

Breakfast and aftercare clubs

Parents and carers perceive that a more affordable and flexible out of school hours childcare service at school, in the shape of *'breakfast and aftercare clubs'* are required as this will support their option for active travel. In this regard, they consider that these kinds of services will especially benefit full time parents or parents going back to work,

> PC-SSI-13: *"proper and affordable childcare at school, definitely! Breakfast and aftercare clubs should be provided in all schools, there shouldn't be excuses for not having both, especially if you work full time and you are going to be walking and cycling, you will require extra time"* (female parent)

PC-SSI-15: *"if I was going back to work, I think I would be happy with an after school care service, because at the moment they don't have one. That would help me to go back to work. I would like to be able to cycle to school with my daughter, drop her there and I could cycle to work"* (female parent)

Out of school activities

Children also consider that an increase in out of school activities will support active travel,

CHA-AG4: *"more after school activities"* (boy, aged 12-16)

Training – motivation – encouragement

Parents express strong views about the importance of school 'policy' and other initiatives in encouraging and motivating them and their children and other parents to use active travel modes.

PC-SSI-20: *"I think the school has an important role to play for the next generation. As a parent, I would support and encourage whatever is required by it, so I think the school can make the difference. If the school requires me to walk with my children, I would sacrifice my sleep in the mornings, but I would do it. I would join other parents walking and cycling to school, that would motivate me, definitely!*" (female parent)

Parents and carers considered that training provided at school would be crucial in motivating and encouraging children into cycling.

PC-SSI-17: *I think my son may be motivated if the school provides him with some training. If he sees his school friends doing it, I'm sure he would do it as well. I think the school could play a very important part in motivating children to cycle"* (male parent)

Children, parents and carers suggest the adoption of an earlier cycling training programme at school as a government policy. The training proposed would entail learning *'to ride'* a cycle, understanding *'the rules'* to more practical issues such as *'how to change the tyres'.*

CHB-AG3: "making sure every child can ride a bike at school" (boy, aged 12-13)
PC-SSI-14: "it would be nice if the government tries to train people from earlier in life into cycling, so by the time they are adults, they already know the rules, how to change tyres, etc." (female parent).

School bus

Parents and carers views are that special attention should be paid to the transport needs of children that live far from school or have *'parents that work'* and that dedicated school transport such the 'school bus' would be of help,

PC-SSI-14: *"the school transport for children that do not live too near or that have parents that work"* (female parent).

Walking and cycling bus/club

Parents and children consider that walking and cycling buses will be a *'great incentive'* to reduce car use related to the school run and the traffic congestion associated with it. Walking and cycling buses are considered to be *'ideal'* of *'great help'* and a solution for *'safety issues'*. Parents expressed the wish of having *"more cycling clubs"* and highlighted that the social and *'fun'* aspect of cycling clubs have the potential to influence and convince children to cycle to school,

PC-SSI-13: *"more cycling clubs, probably, and then walking buses, you will rely on that kind of bus to be on time. That would be a great incentive to reduce the amount of cars around the school area and a lot of congestion on the roads"* (female parent)
PC-SSI-15: *"the walking buses would be ideal. Walking to school buses would be of great help .I also wish that my daughter's school would have a cycling club so the children would be motivated to cycle"* (female parent)
PC-FG1: *"the idea of a school cycling club could change children perspectives and persuade them to want to cycle to school and also present ideas of having fun with friends at the same time"* (female parent)

7.6.2 Active travel networks

Parents and children consider that the creation of a *'network'* that supports active travel would work as a motivator to get more people into active travel. Such an *'active travel network'* was expressed in terms of *'walking buddies'*, *'more people walking and cycling'*, '*lollypop men'*, *'police patrol and surveillance'* and *'use of communication technologies'*.

For example, the presence of other people like a 'walking buddy' or more people doing the same: walking or cycling through 'club walks' that can be organised by school or community groups, would encourage parents into active travel,

PC-FG1: *"have a walking 'buddy' in your neighbourhood. You could get the information at the library"* (female parent)
PC-SSI-15: *"I also think that if people see more people cycling, this would motivate to change the idea that we can only move with a car. It will come the time that cycling will be so common that people would be motivated to cycle, with your family, etc."* (female parent)
PC-SSI-20: *"I would join other parents walking and cycling to school, that would motivate me, definitely. The school could organise the groups"* (female parent)
PC-FG2*: "if there were more people cycling or walking around, walkers group"* (female parent).

Parents and children expressed wishes for seeing a bigger number of people around, more lollypop men, more police patrols and wardens in order to ensure safety through surveillance,

> CHD-SSI-22: *"it would also be good if more adults were to walk down through the alleyways, walking on the alleyways, because sometimes I see this people messing around, they are just like kicking stuff around, it is kind of bad"* (girl, aged 12-16)
> PC-SSI-13: *"more lollypop people, focusing in children really"* (female parent)
> PC-SSI-17*: "more wardens and police patrols at key times to ensure the safety of children going to and from school"* (male parent).

And in general, more people involved in outdoor activities and events being gathered through the use of new communication technologies,

> PC-FG1: *"more events hosted in open air spaces and better information about them, maybe through tweeter"* (female parent)
> PC-FG1: *"to have people to help to find an address if you are lost, they can be contacted by phone or on the Internet"* (female parent)

7.6.3 Changes at Work

Children, parents and carers expressed wishes about several changes in the way of working so they can opt for active travel and benefit from *'spending more time together and use less cars to move around',*

They perceive that people would need to be *working more locally* in order to be closer and have *'more time'* to be able to walk or cycle,

> *CHA-AG5: "they can do their jobs in different places, the same job but quite near so they can walk to their jobs"* (boy, aged 7-11)
> *PC-FG1: "to have more time to allow me to walk"* (female parent).

Working would become more 'flexible' as it would allow them to work from home or to be on *flexible hours* to accommodate their specific needs,

> PC-SSI-19*: "there are companies more flexible than others. In some if you get in at 8 am, you can leave at 4pm, or if you get in at 9 then you can leave at 5, depending on your personal circumstances, you can accommodate to your own needs, your children, for example"* (female parent)
> PC-SSI-19*: "some days you can be at the office and on the other days you can be working from home…I think that would be fabulous! Because even if you are connected to your computer working from home they are still seen you! You would still be seeing your boss, your colleagues…therefore, they won't expect you to go to the office every day, it should be that flexible, and that would be so nice!"* (female parent).

In addition, the use of supporting *technology,* being available to allow people working from various places through *'teleconference facilities'* close to home or local schools, giving parents more time to share with the family,

> *PC-FG2: "in the future people will have the chance of working from places with teleconferences facilities next to our children's schools, so, they would have lunch with children and the technology would help families to spend more time together and use less cars to move around"* (female parent)

The method of use of a 'teleconference facility' and the benefits derived from it for families are described in detail by one of the participants:

> *PC-SSI-18: "my husband says that if the petrol keeps getting more and more expensive, in the future he imagines that he can still work for the same company [which is a big company 30 miles away from home] but there would be some places in local areas where people working for different companies living within an area would be sharing spaces, rooms equipped with big screens, computers, etc. and you can work there once a week or just go for special meetings, etc. They will know that you are at the office because there will be a special system, such as you will put your finger and login but next to you it could be seating a person working for a different company that lives locally also, and they can be sharing special rooms to communicate with their offices and bosses, such as teleconference. You can take your children with you to school and you find those kinds of places there so you can start working for the day. At lunch time we could stop for lunch and we can get the children having lunch with us, they will go back to school and we will go back to work and at the end of the day you can come back home all together. We wouldn't be contaminating… I think our generation won't have that. Maybe that would be possible for our grandchildren"* (female parent).

7.7 Changes to public transport

The changes to public transport suggested by children and parents include an *'improved'* public transport system; provided at *'low cost'*; more *'efficient'* in terms of speed, frequency, reliability, punctuality and connection; *'safer and better manned'*; and more *'attractive'* in terms of cleanliness and maintenance (Figure 7.23).

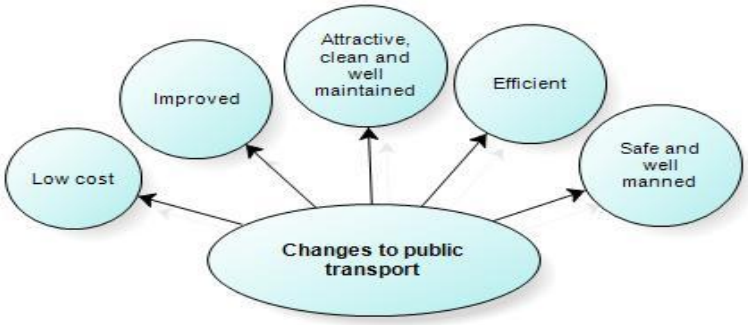


Figure 7.23: Changes to public transport

7.7.1 Improved public transport

Children, parents and carers considered the transport service should be improved by making it more *'energy efficient'*, *'accessible'* and *'innovative'*.

Energy Efficient

An energy efficient public transport service is considered by children, parents and carers to be a 'greener' system able to generate its *'own power'*; *'reduce emissions'* and cause *'no pollution'*, and include buses and trains *'powered by solar panels; 'magnetic train track systems';* self-powered *'mini-turbines';* and the use of *'natural fuels'* e.g., *'green diesel like the 'jatropha' oil'.*

> CHC-AG1: *"the idea of magnetic track train system as used in Tokyo enabling high speed transport and an efficient service with no pollution"* (boy aged 12-16)
> CHC-AG1: *"solar paneled buses generating their own power with electricity backup systems for night reducing emissions"* (boy aged 12-16)
> PC-FG2: *"we would have to use natural fuels, for example green diesel like the 'jatropha' oil, because the technology to implement solar technology is still too expensive"* (female parent).

Accessible

In terms of access, it seems important to parents ensuring that *'all future designs'* on public transport provide *'generous'* or *'enough'* space provision to carry cycles, pushchairs, wheelchairs, electric scooters, etc., especially on trams and trains.

> PC-SSI-10: *"ensure that all future designs for trains provide generous space for cycles"* (male parent)
> PC-SSI-12: *"the one thing I would like to see in the ability to put bikes on trams in Manchester"* (male parent)
> PC-SSI-17: *"I hope that they provide enough space for wheelchairs,* [electric] *scooters, cycles, prams, etc., on trams and trains"* (male parent).

Innovative-alternatives

Children, parents and carers' views show that it is important that public transport provides a choice of systems, i.e., a combination of trams, metro, buses, trains, etc. In addition, they propose innovative solutions and alternatives for a more active public transport system such as *'pedal buses'* or a *'cycling-taxi system'* that will also benefit families.

> PC-FG1: *"there are places in the world that you can take as an example; I've just been in*

Budapest, last week and an amazing amount of tram, metro, buses, everywhere, all over the places although you have to do a lot of combination but they are quite often, and the routes are quite easy as well and the prices are cheap, unbelievable cheap" (female parent)
CHB-AG5: *"a pedal bus"* (boy aged 12-16)
PC-SSI-15: *"sometimes I wonder if a cycling-taxi system similar to the one in Cuba would work here. That would help to fight the pollution and it doesn't need any fuel. It is called the 'bicitaxi 'and as it has the same right as any other vehicle to use the roads; the car drivers have to respect 'bicitaxi' drivers. It is a very easy way of hiring transport in Cuba, especially for families, as it can fit many passengers at the same time. As it has a little roof with drop-down sides it can protect you from the rain, or the sun, and the seats are comfortable"* (female parent).

Further alternatives for long distance travel include the use of a *'sea cat'*, a *'collective cycling transport' and a 'community-based bus hiring system'* for families or special circumstances such as funerals.

CHD-SSI-16: *"an idea of alternatives for long distant travel to help discourage use of planes could be a sea at, that works with solar power and a wind turbine system"* (boy aged 12-16)
PC-SSI-13: *"community based bus travel either a mini bus, anything. Even a minibus we can all pay, you know, I think that would be great idea, where parents can hire it and we all can pay towards the petrol, we can grab our family, friend base day outing! That would be excellent! That would take a lot of thought, depending what kind of network of friends you have, and how reliable your friends were really, or how they would cope with having the responsibility of having that vehicle. Even if I was actively driving, I think hiring a [community based] bus would be excellent!"* (female parent).

There are also other suggestions made by children about the transport systems occupying their own dedicated spaces and therefore, becoming very fast and efficient, i.e*., 'buses having their own lane', an 'underground bus system'* and a *'suspended'* or *'lightweight tram network'*. Children suggest the use of similar systems to the ones used in places like Tokyo that allow *'high speed', 'no traffic problems'* and *'no pollution'.*

CHD-SSI-19: *"you need to change them, they should be underground or like over roads, like a bridge…sort of roads over roads, you can get anywhere twice as quicker"* (boy aged 12-16)
CHD-SSI-06: *"more trams; trams could be built in the air" (female parent)*
CHC-AG1: *"an idea of magnetic track train system as used in Tokyo enabling high speed transport and an efficient service with no pollution"* (boy aged 12-16)
CHC-AG1: *"suspended, lightweight tram network, high speed, cheap fares and no traffic problems"* (boy aged 12-16).

7.7.2 Low cost

Children, parents and carers suggest that public transport should be 'cheaper' or even 'free' and that a *'reward'* system should be put in place such as opting for regular use and the combination of active travel modes and public transport instead of driving a car,

making active travel a more attractive option. They consider that by providing more *'affordable'* public transport will particularly benefit large families,

> PC-SSI-12: *"make public transport cheaper"* (male parent)
> CHC-AG1: *"give rewards to those that use public transport or make it free, but good quality not run down"* (boy aged 12-16)
> CHC-AG1: *"like if you use the trams for so many hours and so long then you get like a five pound voucher for M&S for example"* (girl aged 12-16).

7.7.3 Efficient

Parents and carers considered that more *'efficient'* and *'convenient'* public transport should be offered in terms of time, connection, frequency, and reliability. In terms of time, children, parents and carers said that they want a *'faster'* public transport service that allows them to move around 'quicker' than in private transport,

> CHD-SSI-13: *"fastest to get around"* (girl aged 12-16)
> PC-SSI-06: *"I would like to have more public transport that would get you to any place quicker"* (female parent).

Regarding *'connection'* parents and carers considered that 'routes should be extended' and the service should be 'better' connected to areas that are not well served currently. There are also wishes for having more direct connections so it is possible to avoid numerous changes of services on a single journey,

> PC-FG1: *"better and more transport connections"* (female parent)
> PC-FG1: *"routes should be extended"* (female parent)
> PC-FG2: *"if buses could get you quicker and further to your destination without getting off the bus"* (female parent).

In terms of *frequency,* children, parents and carers thought that the transport service should run more frequently especially through busy areas and at busy times, i.e., through school routes, at school run times,

> CHD-SSI-13: *"make easier to get more buses"* (girl aged 12-16)
> CHD-SSI-02: *"make it more frequent"* (boy aged 12-16)
> PC-FG1: *"the frequency of public transport need to be improved"* (female parent)
> PC-SSI-14: *"if public buses would pass frequently through school routes at school times and the services was free for children of school age, I think more parents would avoid driving the car for the school run"* (female parent).

In terms of *'reliability',* children, parents and carers expressed their wishes for a more reliable transport system that runs *'on time'* and that allows them to be at the places they need on time,

> CHD-SSI-02: *"you could make the buses more reliable. The timetables aren't always right; they are late most of the time"* (boy aged 12-16)
> PC-SSI-13: *"more buses running on time"* (female parent)
> PC-SSI-01: *"it could be relied on to get you where you need to be on time'* (female parent).

7.7.4 Safe and well manned

Children, parents and carers expressed their views for a 'safer' and better 'manned' public transport system. Regarding '*safety',* they considered this should be improved inside the public transport services and outside at the stops and stations, especially at night times,

> PC-FG2: *"security at night is also important"* (female parent)

Children, on the other hand, thought that part of the safety should focus on providing a public transport service with better seat provision and also with 'seat belts',

> CHD-SSI-01: *"I would like seat belts on and proper seats"* (boy aged 12-16)

By *'better manned',* parents and carers, particularly, expressed the need for more 'control' over passengers' unacceptable behaviour inside the public transport services. They suggest, beside the drivers, more staff or 'authorities' monitoring safety and handling 'bad behaviour' from noisy young people or people smoking,

> PC-FG2: *"more control inside the buses by the drivers"* (female parent)
> PC-FG1: *"if someone could monitor safety and ensure rules are adhered to"* (female parent)
> PC-FG2: *"drivers should be stricter with young people, some of them are noisy"* (female parent).

However, parents and carers also expressed their wishes for a more 'friendly' and tolerant attitude from the drivers and other transport users towards others users, particularly towards children,

> PC-FG1: *"friendly drivers"* (female parent)
> PC-FG2*: "a better attitude of drivers and other passengers"* (female parent)
> PC-SSI-13: *"people need to be more tolerant of children on public transport and trains and so on"* (female parent)

Nevertheless, they expressed their wish that pets are not 'allowed on public transport'.

PC-SSI-13: no pets should be allowed on public transport (female parent).

7.7.5 Attractive, clean and well maintained

Children, parents and carers would like to have more *'attractive'* public transport in terms of '*comfort'*, and *'maintenance'*. By *'comfort'*, they refer to 'smoother rides' and 'more comfortable stops and waiting areas'. Parents particularly, expressed the need for more child friendly waiting areas at transport stations,

CHD-SSI-13: *'smoother rides"* (girl aged 12-16)
PC-FG2: *"a more comfortable transport service"* (female parent)
PC-SSI-13*: "there should be more waiting areas for children, more geared for children like in bus stations and coach stations"* (female parent).

In terms of '*maintenance',* children, parents and carers expressed their wishes for a more 'clean' and 'tidy' transport service,

PC-SSI-01: *"if they were cleaner"* (female parent)
PC-FG1: *"make it clean and tidy and keep it that way"* (female parent).

7.8 Changes to the approach in the use of private vehicles

Children, parents and carers propose to restrict the use of cars for private purposes. Suggestions on how to do it are seen below in Figure 7.24, include *'banning cars from circulating and parking'* in certain zones in the city, 'speed limits and traffic calming measures', 'clamping', 'charges', 'fines and other harsher laws' and 'more extreme measures'.

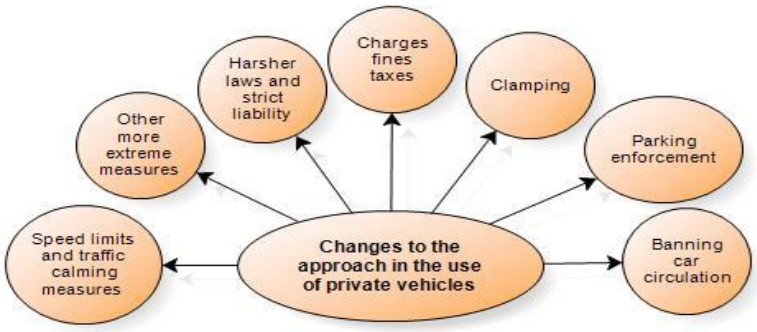


Figure 7.24: Changes to the approach to private vehicle use

7.8.1 Banning cars from circulating and parking enforcement

Children, parents and carers suggest banning cars from circulating and parking in certain zones in the city, (such as the city centre) with the view of achieving more pedestrianised areas where cycling can be also welcome. Banning parking around schools is also seen as a way to change people's *'attitude'* and *'their behaviour'.* In addition, there are suggestions for more enforcement regarding parking on pavements around schools, as this is considered a safety issue,

> CHB-AG3: *"pedestrianised town centre: taking the car out of the roads"* (boy aged 12-16)
> PC-SSI-12: *"there would be more central urban areas where vehicular access was limited but cycling was welcome"* (male parent)
> PC-SSI-10: *"you just ban parking within a particular area around schools to help people to change their attitude and to change their behaviour, because is a behavioural thing to put the kids in the car and drive half a mile to school and seat in traffic for half an hour for a distance you can walk in 10 minutes"* (male parent)

7.8.2 Clamping

'Clamping' vehicles was the children's suggested solution for people that do not walk or cycle and insist on driving a car,

> CHB-AG3: *"You will have your car clamped"* (boy aged 12-16)
> CHB-AG4: *"Ride your bike or you will have your car clamped"* (boy aged 12-16)

For example, children aged 12-16 propose a government campaign in which people's cars are clamped if they do not switch to cycling (Figure 7.25).

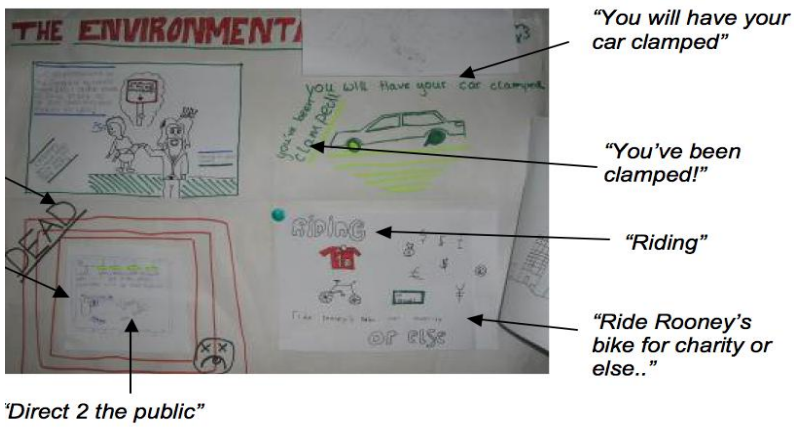


Figure 7.25: Children's ideas about a government campaign that is based on 'clamping' vehicles (Drawings from children 12-16).

7.8.3 Charges, fines and taxes

Parents and carers suggest increasing the cost of running a car, i.e., petrol, etc., and to shift the car tax onto '*fuel exercise duty*', so drivers are charged on a *'pay as they go'* basis *as* a way to discourage the use of cars for private purposes and to incentivise the use of public transport,

> PC-FG1: *"if it is going to cost me a lot of money to run my car; to have to pay petrol and anything, then I wouldn't have any option than to go on public transport"* (female parent)
> PC-SSI-12: *"shift the tax burden on motorists away from car tax on to fuel excise duty, so people pay as they go"* (male parent).

Parents and carers also suggested *'changing'* behaviour by '*fining'* people that park their cars around schools, only to drop off their children.

> PC-SSI-10: *"you have to push them in other direction, if you fine everybody who drops off their children to school, you have to make it so that it is impossible to do it. If you stop people parking, if you fine them, if there is no way they can do it, they will have to change back"* (male parent).

Children, on the other hand, suggest charging for the use of cars through a *'congestion charge'* and *'tolls'* to subsidise bikes and public transport; for example, *'funding more trains'*,

> CHC-AG1: *"tolls to subsidise bikes and public transport"* (boy aged 12-16)
> CHC-AG1: *"congestion charging"* (boy aged 12-16)
> CHC-AG1: *"lots of funding for trains"* (girl, aged 12-16)

7.8.4 Harsher laws and strict liability

Parents and carers suggest upgrading the law and providing harsher sentences to motorists *'being involved in accidents'* with cyclists or pedestrians, especially children and the adoption of *'strict liability'* for motorists and cyclists,

> PC-SSI-10: *"I think we need to make motorists more responsible for killing or causing serious injuries; they need to be held liable or responsible for it without the need to proof their negligence, so they don't have defenses. Of course, I would support the same treatment for cyclists that kill or seriously injure pedestrians. We should upgrade the laws and adopt strict liability for cyclists and motorists"* (male parent)
> PC-SSI-17: *"there should be harsher sentences for drivers and cyclists involved in serious accidents with children"* (male parent).

7.8.5 Other more extreme measures

Other more extreme measures expressed by children include harsher consequences for people that drive in *'no car zones'* or for people that do not *'walk or cycle'*. The consequences includes to *'arrest'* or *'put people in jail'*, to *'be wedged'* or *'to get shot'*,

> CHB-AG3: *"So we've got consequences for everybody in the road... so we got riding bicycles. So if you don't ride Rooney's bike for charity; you will get put in jail"* (boy aged 12-16)
> CHB-AG4: *"Do you really want to be wedged by Russell Brand? No! I didn't think so! No driving in this area. Consequences…If you drive in the no car zone you will be wedged by Russell Brand"* (boy aged 12-16)
> CHB-AG5: *"If you don't walk or cycle you will get shot and survivors will be shot again* (boy aged 12-16)
> CHB-AG3: *"If you are found driving a car you will be arrested"* (boy aged 12-16).

For example, children aged 12-16 propose a government campaign with extreme measures in which if people that do not walk or cycle, or drive a car in no car zones, can be sent to jail, 'shot' or 'wedged' (Figure 7.26).

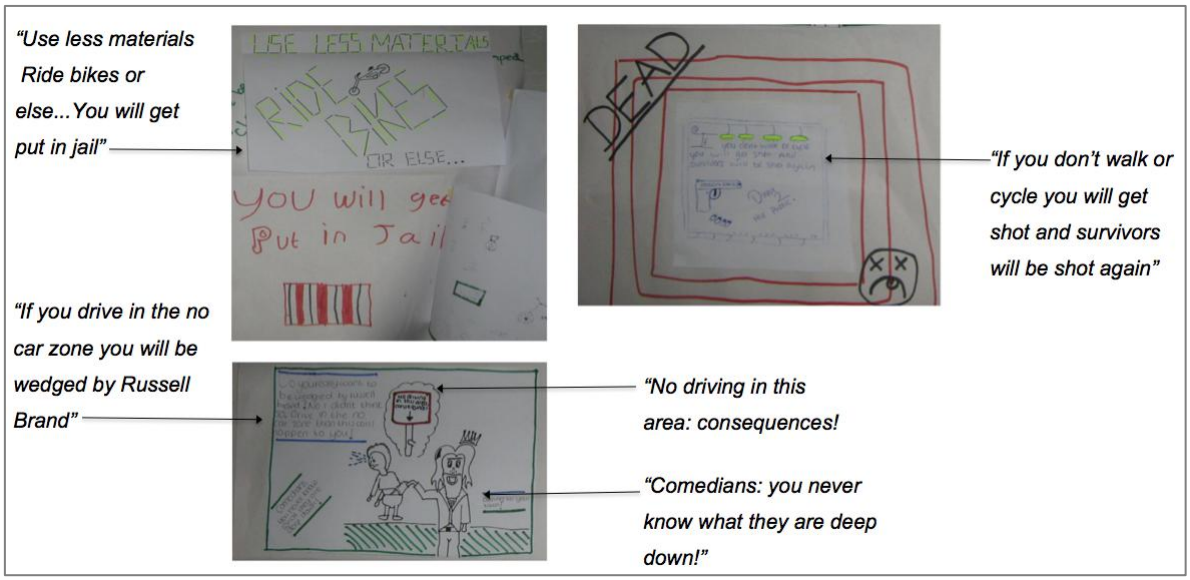


Figure 7.26: Children's ideas about a government campaign that is based on extreme measures in order to discourage driving and encourage walking and cycling (Drawings from children 12-16)

7.8.6 Speed limits and traffic calming measures

Children, parents and carers expressed the need to lower the car drivers' speed near main roads and busy roads in neighbourhoods, particularly around schools; and to further develop traffic-calming measures such as speed bumps,

CHA-AG4: *"speed limits near main roads and busy roads around schools"* (boy, aged 7-11)
CHB-AG2: *"making speed bumps higher"* (boy aged 12-16)
CHB-AG3: *"Kerbing [sic] car driver's speed"* (boy aged 12-16)
PC-FG2: *"getting a lot less traffic by lowering speed limits to reduce traffic around schools"* (female parent).

7.9 Graphic synthesis of what would encourage active travel to school

A graphic synthesis of what would encourage active travel to school that include the 6 themes and 28 sub themes as identified by children and parents is shown in Figure 7.27.

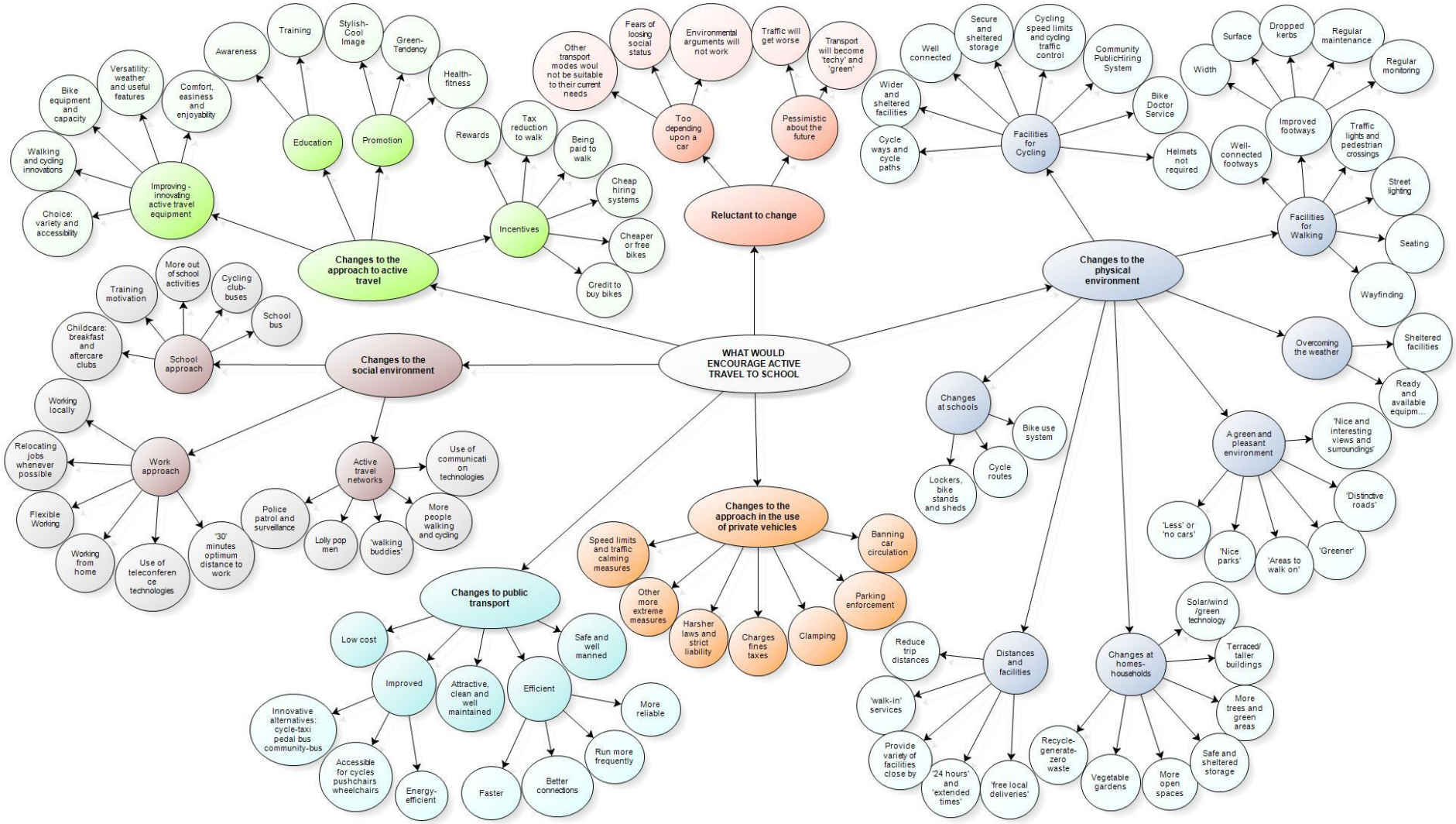


Figure 7.27: Graphic synthesis of what would encourage active travel to school as identified by children and parents

7.10 Analysis and variation of the emergent themes on what would encourage active travel to school

As previously mentioned, although the qualitative survey research method downplays the use of statistical analysis, it is useful to provide some frequencies of references to illustrate the most common perceived themes by children and parents. As can be seen in Figure 7.28 showing a table and pie chart with frequency or references, the most common themes resulted from the analysis of the data and emerging as the aspects that would encourage active travel to school were, in order of importance: '*changes to the physical environment'*; '*reluctance to change', 'changes to the approach to active travel'; 'changes to the social environment'; 'changes to the public transport';* and '*changes to the approach to private vehicle use',*

Name	Sources	Reference
What would encourage ATS	0	0
Changes to the physical environment	34	217
Reluctant to change	44	202
Changes to the approach to active travel	24	87
Changes to the social environment	23	84
Changes to public transport	24	63
Changes to the approach to private vehicle use	11	29

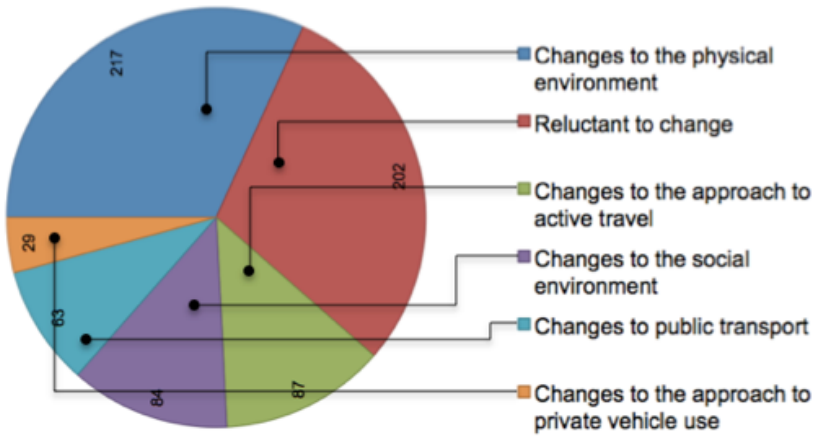


Figure 7.28: Table and pie chart with frequency of references showing the themes emerged on **changes** that would encourage active travel to school

7.10.1 Analysis of thematic ideas by group

Further analysis based on the frequency of references showed that the level of importance of the thematic ideas emerging varied between the groups of parents and children. For example, for the group of parents, the *'changes to the physical environment'* are what would encourage them to travel actively in the first place, whilst children showed a strong *'reluctance to change'* attitude at this level. In second place, the opposite occurred, as whilst parent's views reflected a *'reluctance to change' attitude;* children expressed views that *'changes to the physical environment'* would encourage them into active travel at this level. In addition, parents expressed views that *'changes to public transport'* that would encourage active travel in third place, whilst for children it does not seem that important, as they expressed views that *'changes to the approach to active travel'* would be more important at this level. Parents considered that *'changes to the approach to active travel'* and *'changes to the social environment'* would encourage them to active travel to school, whilst children, considered *'changes to social environment'* and *'changes to public transport'* in the fourth and fifth place respectively. Both groups of parents and children considered *'changes to the approach to private vehicle use'* as last place (Table 7.1).

Table 7.1: Rank order table showing the most important thematic ideas by group

Rank Order	CHILDREN		Rank Order	PARENTS	
1	*Reluctant to change*	*89*	1	*Changes to the physical environment*	*107*
2	*Changes to the physical environment*	*79*	2	*Reluctant to change*	*92*
3	*Changes to the approach to active travel*	*44*	3	*Changes to public transport*	*43*
4	*Changes to the social environment*	*30*	4	*Changes to the social environment*	*42*
5	*Changes to public transport*	*20*	5	*Changes to the approach to active travel*	*37*

7.10.2 Analysis of the thematic ideas by age group

There were also variations between the groups of children by age, for example, regarding children, the group aged 7 to 11 show a *'reluctance to change*' attitude in first place; followed by *'changes to physical environment'* in second place; whilst the group of children aged 12 to 16 show the opposite: *'changes to the physical environment'* in first place, and a *'reluctance to change'* attitude in second place. In third place, children aged 7 to 11 consider that *'changes to the social environment'* would encourage them into active travel

to school in the future, whilst children aged 12 to 16 consider *'changes to the approach to active travel'* would encourage them in the future (Table 7.2).

Table 7.2: Rank order table showing the most important thematic ideas by age

Rank Order	CHILDREN AGED 07-11		Rank Order	CHILDREN AGED 12-16	
1	*Reluctant to change*	*43*	1	*Changes to the physical environment*	*39*
2	*Changes to the physical environment*	*22*	2	*Reluctant to change*	*36*
3	*Changes to the social environment*	*4*	3	*Changes to the approach to active travel*	*26*
4	-	-	4	*Changes to the social environment*	*12*
5			5	*Changes to the use of private vehicles*	*9*

7.10.3 Analysis by gender

Analysis based on gender variables found that for female parents and male children *'changes to the physical environment'* were the main and strongest aspects that would encourage them to active travel to school; whilst male parents and female children showed a *'reluctance to change'* attitude to be in first place. In second place, the complete opposite happened: female parents and male children showed *'reluctance to change'* attitudes, whilst male parents and female children considered that *'changes to the physical environment'* would encourage them to active travel to school. In third place, male parents, and all children regardless of their gender, considered that 'changes to the approach to active travel' would encourage them. However, female parents considered that 'changes to the social environment' would encourage them (Tables 7.3 and 7.4).

Table 7.3: Rank order table showing the most important thematic ideas to children by gender

Rank Order	FEMALE CHILDREN		Rank Order	MALE CHILDREN	
1	*Reluctant to change*	*76*	1	*Changes to the physical environment*	*70*
2	*Changes to the physical environment*	*71*	2	*Reluctant to change*	*51*
3	*Changes to the approach to active travel*	*41*	3	*Changes to the approach to active travel*	*32*
4	*Changes to the social environment*	*26*	4	*Changes to the social environment*	*26*
5	*Changes to public transport*	*16*	5	*Changes to public transport*	*15*

Table 7.4: Rank order table showing the most important thematic ideas to parents by gender

Rank Order	FEMALE PARENTS		Rank Order	MALE PARENTS	
1	*Changes to the physical environment*	*88*	1	*Reluctant to change*	*22*
2	*Reluctant to change*	*71*	2	*Changes to the physical environment*	*19*
3	*Changes to the social environment*	*40*	3	*Changes to the approach to active travel*	*14*
4	*Changes to public transport*	*33*	4	*Changes to public transport*	*10*
5	*Changes to the approach to active travel*	*23*	5	*Changes to the use of private vehicles*	*9*

7.10.4 Analysis by travel mode

According to their travel mode, parents and children were split into groups of walkers, cyclists, car users and bus users. It was found that what would encourage all the groups without exception, in first place, was *'changes to the physical environment'*. However, in second place, the groups of walkers, car and bus users, showed *'reluctance to change attitudes',* whilst cyclists expressed views that *'changes to the approach to active travel'* would encourage active travel to school. In third place the views also seem different: the groups of walkers and bus users considered that *'changes to the approach to active travel'* would encourage them, whilst car users considered that *'changes to the social environment*' would be more important. The group of cyclists showed a *'reluctance to change'* attitude instead (Table 7.5).

Table 7.5: Rank order table showing the most important thematic ideas by travel mode

Rank Order	WALKERS		Rank Order	CYCLISTS		Rank Order	CAR USERS		Rank Order	BUS USERS	
1	*Changes to the physical environment*	*102*	1	*Changes to the physical environment*	*44*	1	*Changes to the physical environment*	*123*	1	*Changes to the physical environment*	*90*
2	*Reluctant to change*	*85*	2	*Changes to the approach to active travel*	*29*	2	*Reluctant to change*	*97*	2	*Reluctant to change*	*59*
3	*Changes to the approach to active travel*	*47*	3	*Reluctant to change*	*23*	3	*Changes to the social environment*	*44*	3	*Changes to the approach to active travel*	*40*
4	*Changes to the social environment*	*35*	4	*Changes to the use of private vehicles*	*12*	4	*Changes to the approach to active travel*	*34*	4	*Changes to the social environment*	*37*
5	*Changes to public transport*	*28*	5	*Changes to the social environment*	*9*	5	*Changes to public transport*	*24*	5	*Changes to public transport*	*27*

7.10.5 Analysis by themes and sub themes

An analysis based on the frequency of references by theme showed the most important sub themes that would encourage children and parents to opt for active travel to school.

Changes to the physical environment (7.3):

With regard to the *'physical environment'*, as can be seen in Figure 7.34 showing table and pie chart with frequency of references, the most important aspect for parents and children in terms of encouraging active travel to school is in first place *'facilities for cycling'*. *'Facilities for walking'* comes a distant second. A *'green and pleasant* environment' comes a distant third but this is also closely bunched together with other factors as *'changes at homes and households'*, *'changes at schools'* and *'distance and facilities'*.

The physical environment	34	208
Name	Sources	Reference
Facilities for Cycling	23	94
Facilities for Walking	17	42
Green and pleasant environment	12	29
Changes at homes-households	8	25
Changes at schools	9	22
Distance and facilities	14	22
Overcoming the weather	4	6

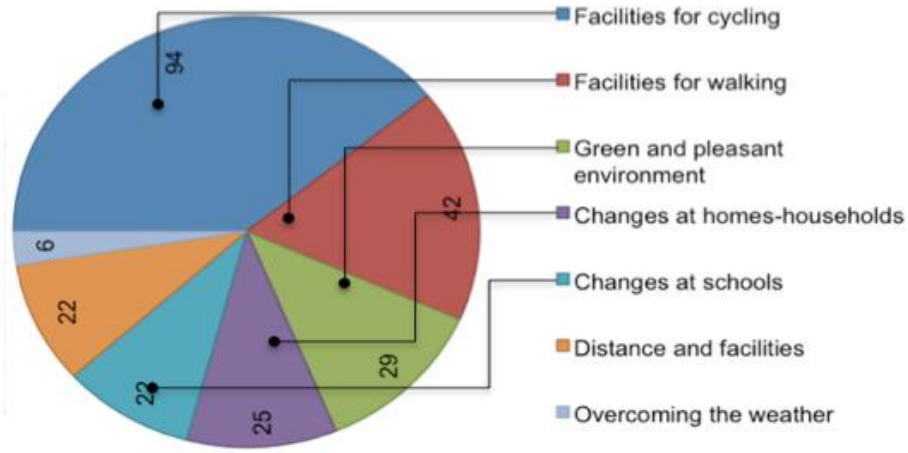


Figure 7.34: Table and pie chart with frequency of references showing the most important sub themes emerged in *the physical environment (7.3)*

Changes to the approach to active travel (7.5):

With regard to *'the approach to active travel'*, as can be seen in Figure 7.35 showing table and pie chart with frequency of references, the most important aspects that would

encourage children and parents to active travel are *'incentives'* based on rewards, tax reduction, credits or payments for people that walk or cycle, and also in the provision of free bikes and a low price cycle hiring system. *'Promotion', 'education'* and *'improving and innovating active travel equipment'* come second. All of these factors are close together, roughly in equal proportion.

Changes to the approach to active travel	24	87
Name	Sources	Reference
Incentives	10	34
Promotion	7	16
Education	9	12
Improving -innovating active travel equipment	5	11

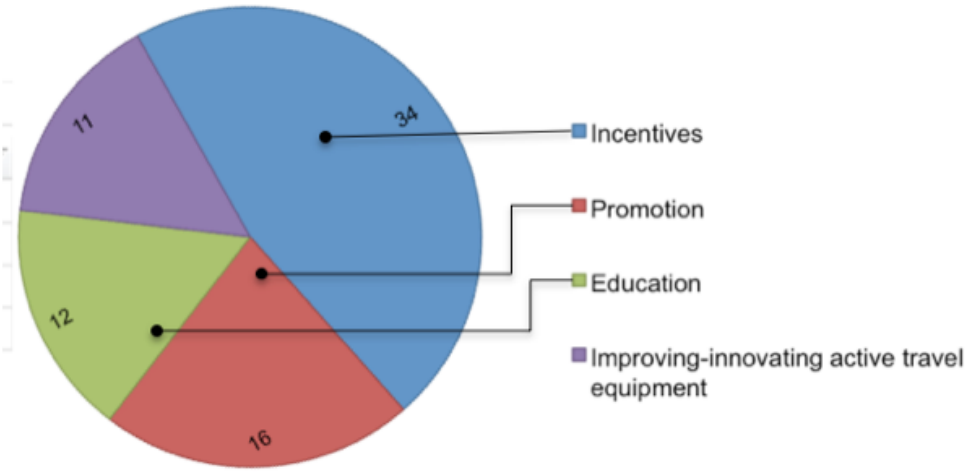


Figure 7.35: Table and pie chart with frequency of references showing the most important sub themes emerged in *the approach to active travel (7.5)*

Changes to the social environment (7.6):

With regard to the *'social environment'* Children and parents considered that improvements to the '*school approach'* based in the provision of 'before and after' school care, walking and cycling clubs or buses, school buses, training, motivation and more out of school activities, are the most important aspects that would motivate them into active travel to school, as can be seen in Figure 7.36 showing table and pie chart with frequency of references.

The social environment		23	84
Name		Sources	Reference
School approach		9	22
Active travel networks		7	17
Changes at work		4	8

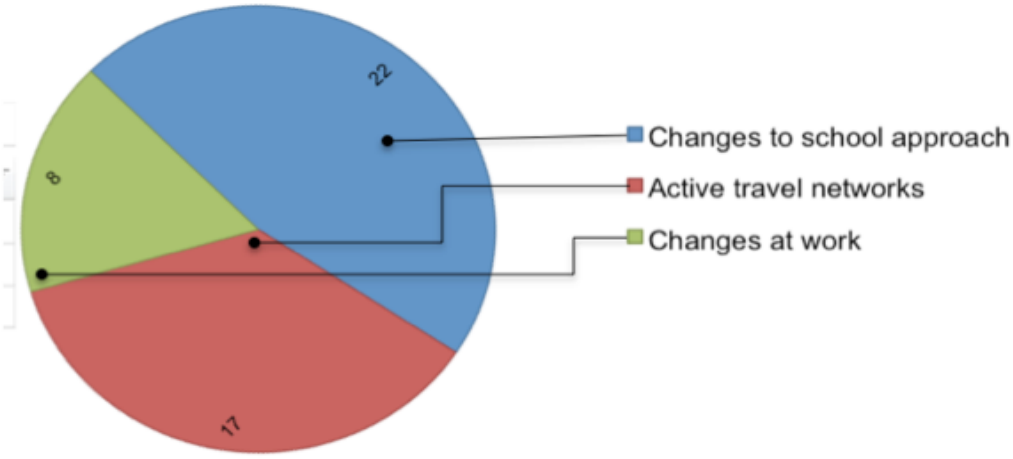


Figure 7.36: Table and pie chart with frequency of references showing the most important sub themes emerged in the approach to *the social environment (7.6)*

Changes to public transport (7.7):

With regard to *'public transport',* the most important aspects that parents and children perceive that would benefit them are, in first place, the *'improvements'* in terms of energy efficiency, accessibility and innovation. In second and third place respectively, were the *'low cost'* and the *'efficiency'* of the public transport provision, as can be seen in Figure 7.37 showing table and pie chart with frequency of references.

Changes to public transport	24	63
Name	Sources	Reference
Improved-energy efficient,accessible,innovative	21	56
Low cost-investment-rewards	14	33
Efficient - fast, frequent, reliable, on time, well conected	13	26
Safe and well manned	3	13
Attractive, clean and well maintained	4	8

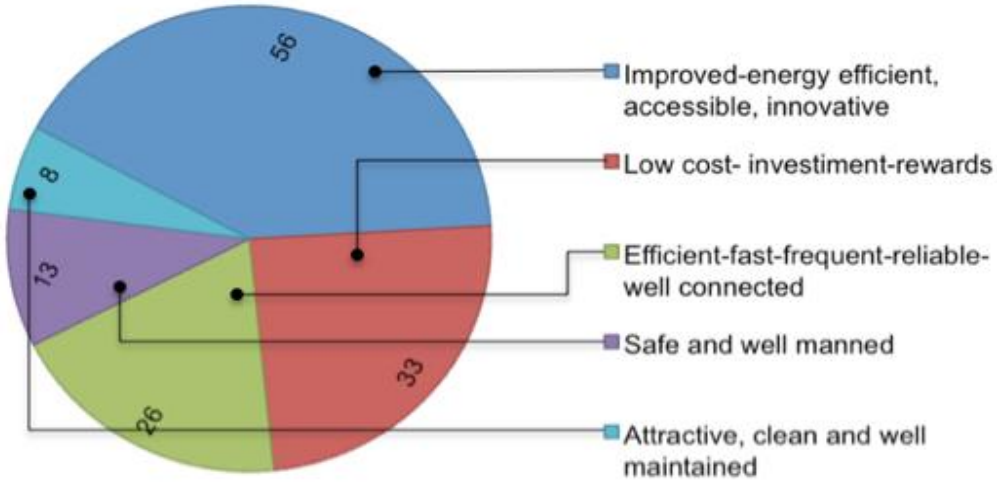


Figure 7.37: Table and pie chart with frequency of references showing the most important sub themes emerged in in *public transport (7.7)*

Changes in the approach to private vehicle use (7.8):

With regard to *'changes in the approach to private vehicle use'*, Children and parents considered that *'banning cars from circulating'* and *'enforcing parking restrictions'* are the most important aspects that would motivate them into active travel to school, as can be seen in Figure 7.38 showing table and pie chart with frequency of references .

Changes to the approach to private vehicle use		11	29
Name		Sources	Reference
Banning cars circulation and parking-enforcement		8	13
Clamping		2	7
Charges-fines-taxes		5	6
Harsher laws and strict liability		5	6
Other more extreme measures		2	5
Speed limits and traffic calming measures		3	5

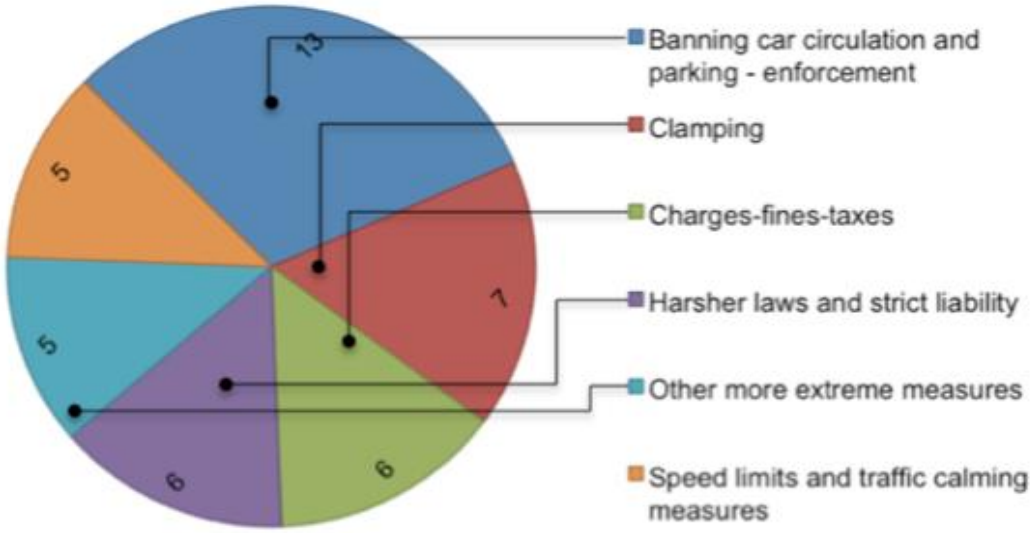


Figure 7.38: Table and pie chart with frequency of references showing the most important sub themes emerged in *the approach to private vehicle use (7.8)*

7.11 Summary

This research sought to elicit perceptions of children aged 7-16 and parents aged 20-60 from families living in urban contexts about what would encourage them to use more active travel modes in the future. This chapter presented and discussed, in detail, the 6 themes and 28 sub themes that emerged from the analysis of the empirical data and that represents children and parents' perceptions of what would encourage active travel to school: *changes to the physical environment*; *reluctance to change, changes to the approach to active travel; changes to the social environment; changes to the public transport system; and changes to the approach to private vehicle use.*

- *'Changes to the physical environment'* include as sub themes: providing 'facilities for

cycling and walking'; 'a green and pleasant environment'; 'changes in households'; 'changes at school'; 'reducing distances and providing diverse facilities' close by, and 'overcoming the weather'.

- *'Reluctance to change'* comprises childrens' and parents' perceptions of 'car dependency', which include 'fears of losing social status', the perceptions about the 'suitability of other transport modes', and the perception about the 'environmental arguments' that aim to discourage car use. In addition it encompasses their 'pessimistic perceptions about the future'.

- *'Changes to the approach to active travel'* include the use of 'incentives', 'promotion', 'education', and the 'improvement and innovation of active travel equipment'.

- *'Changes to the social environment'* encompasses changes in the 'school approach' to active travel, the creation of 'active travel networks' and 'changes in the approach at work'.

- *'Changes to the public transport system'* include 'improved public transport'; at 'low cost'; more 'efficient in terms of speed, frequency, reliability, punctuality and connection'; 'safer and better manned'; and more 'attractive in terms of cleanliness and maintenance'.

- *'Changes to the approach to private vehicle use'* comprise 'banning cars from circulating and parking' in certain zones in the city, such as the central urban areas and especially around schools; 'speed limits and traffic calming measures'; 'clamping', 'charges and fines'; 'other harsher laws' and 'more extreme measures'.

A graphic synthesis was presented in order to illustrate children's and parents' views of what would encourage active travel to school from their own point of view. Further analysis based on the frequency of references showed that the level of importance of the thematic ideas emerged as aspects that would encourage them to active travel to school in the future varied between the groups of parents and children and also varied by age, gender and travel mode groups.

- It was found that, in first place, the most important aspect that would encourage children and parents into active travel to school is *'changes to the physical*

environment', and within this, 'facilities for cycling', 'facilities for walking' and a 'green and pleasant environment' are paramount.

- In second place, it was found that there exists a very strong *'reluctance to change'* attitude between the participants, reflected in perceptions that show a strong car dependency, particularly in the case of young female children aged 7 to 11.

- In third place, it was found that 'incentives' from *'changes to the approach to active travel'* and 'school approach' from *'changes to the social environment'* are aspects considered equally important for children and parents. However, the first seems more important to children aged 12-16, to male parents and to the group of cyclists, whilst the second seems more important to children aged 7-11, female parents and car users.

- To a lesser extent, the 'improvements', 'low cost' and 'efficiency' from *'changes to public transport';* and 'banning cars circulating' and 'parking enforcement' from *'changes to the approach to private vehicle use';* are also important aspects, although the first seems more important for the group of parents and older children aged 12-16 and the second seems more important for the group of walkers and cyclists.

CHAPTER 8: DISCUSSION - A SUPPORTIVE ENVIRONMENT FOR ACTIVE TRAVEL TO SCHOOL

8.1 Introduction

This chapter presents the discussion based on the results presented in the empirical chapters 5, 6 and 7. The discussion has been structured around the *synthesis of factors and variables that affect children's active travel to school*, which was produced in chapter 2 of this thesis. According to the synthesis, there are diverse factors that affect active travel to school behaviour in terms of choice, frequency and quality at the individual, household and family, community and wider levels. Therefore, this chapter discusses the perspective adopted in section 8.2, and how the results fit into the existing body of knowledge and current theories at the diverse influence levels in sections 8.3 to 8.7. A critical review and synthesis of the requirements of a supportive environment for active travel is presented in sections 8.8 and 8.9. The implications for policy are discussed in 8.10. Finally, a summary is provided in section 8.11.

8.2 An ecological perspective of active travel

An ecological perspective, widely applied in other disciplines (Bronfenbrenner, 1979, 1986; Germain 1991; Fraser 2004a) offers useful concepts addressing the relative importance of contextual factors on children's development. Bronfenbrenner (1979) argues that in order to understand human development, it is necessary to consider the entire ecological system in which growth occurs. Such system, shown in Figure 8.1, is composed of a number of subsystems that range from the *microsystem*, which refers to the relationship between a child and the immediate environment (such as school and family); to the *macrosystem*, which refers to institutional patterns of culture (such as the economy, customs and bodies of knowledge),

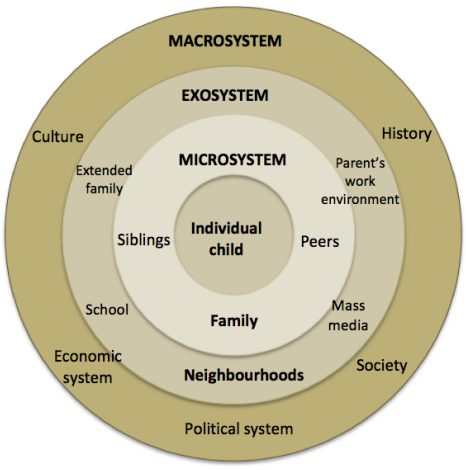


Figure 8.1: Bronfenbrenner's ecological model (Bronfenbrenner, 1979,1986).

The ecological theory situates the child at the center of the system and state that a child's development is determined by what she/he experiences in these settings, and also by the nature of the relationships between different settings. Hence, for the purpose of this research; as active travel has the potential to contribute not only to a child's healthy development and participation in society, but to parent's well-being; it can be argued that the *synthesis of factors and variables that affect children's active travel to school* (produced in chapter 2, Figure 2.7), it is framed within an ecological perspective from the point of view that the synthesis addresses the effects that a complex array of factors have on children and parents' active travel to school behaviour. Such psychosocial, social, physical environmental and political factors (shown in Figure 8.2), are present at: individual; household and family; community (neighbourhood); and at a wider (local and national) levels; and have the potential to influence children and parents' decision-making about active travel to school not only in terms of choice and frequency but also in its quality.

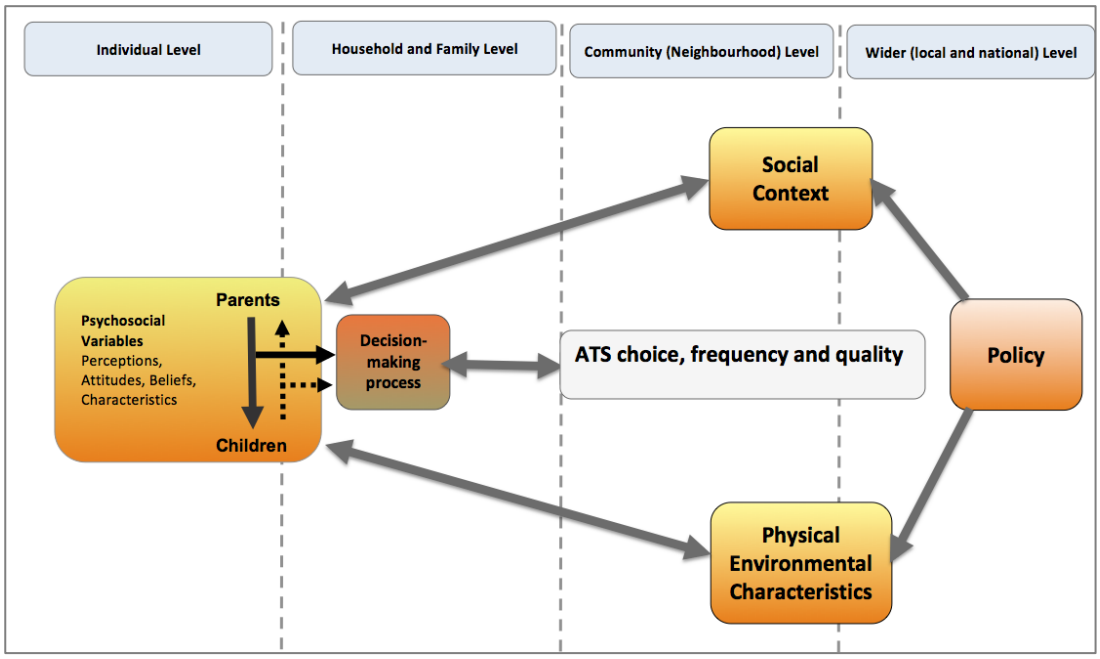


Figure 8.2: The ecological perspective of the synthesis of factors and variables that affect active travel to school

In addition, the principles contained in the ecological perspective have further implications with regard to policy, in view that policy decisions at all levels have an indirect effect on active travel by funding initiatives and infrastructure projects supporting or not active travel activity. Therefore, such principles can be used to create policies that will work on an

integrated basis, cutting across traditional policy boundaries such as the ones discussed in chapter 3 of this thesis.

8.3 Individual and family level factors affecting active travel to school

According to the synthesis of factors and variables that affect children's active travel to school, there are diverse psychosocial variables that influence parents' and children's decision making processes about the choice of travel mode, its frequency and quality (discussed in chapter 2 and shown in Figure 2.7 of this thesis). From the views of the 130 participants engaged in this PhD research, it can be argued at the individual and family level, the most significant factors that affect their active travel choice are their perceptions of safety and in this regard, although the majority of children and parents perceive a lack of viability of active travel modes under the current prevalent safety conditions, a minority of them that currently walk and cycle cope with the use of some strategies. Other factors of influence are their perceptions of walking, cycling and attitudes towards car use. In this regard, although children and parents recognise the benefits and advantages of active travel modes, they also consider them as modes that require extra physical effort. In addition, they show strong positive attitudes towards car use and highlight their advantages for families.

8.3.1 Perceptions of safety: the lack of viability of active travel modes under the prevalent conditions

Safety, as a factor of influence on the decision-making process about active travel, has been addressed by previous research (McMillan 2005; Brunton et al., 2006; Panter et al., 2008; Faulkner et al., 2010; Pooley et al., 2011) discussed in chapter two of this thesis. In this regard, the *perceptions of risk* are the most significant emerging theme at individual and family levels for the participants of this PhD research and comprise two aspects: traffic and personal risk. *Traffic risk* victimises children and parents, who fear that by opting for walking and cycling they need to negotiate busy roads and therefore are exposed to the careless attitudes of drivers and to traffic accidents. Walking and cycling also pose a *personal risk* to children and parents, because by being outdoors, they feel exposed to injuries and falls, attacks, abductions or crime.

From all the children participating in this research *(n=96),* the younger ones (aged 7-11 *n=51)* are the most affected by the perceptions of traffic and personal risk. This is reflected by the low levels of walking and cycling independently and also in their high level of car

use. For example (as presented in section 4.8.2, table 4.1 of this thesis), from the total of children that walk in this group *(n=18)* the number of them that walk independently is very low *(n=3),* mainly because parents do not allow them to do so. In addition, cycling is the least popular mode of transport in this group, as only one child cycles regularly to school, although not independently. Furthermore, the car is the most usual mode of transport to school in this group *(n=32)* because parents perceive younger children as the most vulnerable and in need of protection, from *stranger danger* and *traffic,* which includes drivers' lack of awareness. For example, they perceived that children, male in particular, lack enough focus and ability to judge and negotiate fast moving traffic on the way to school.

Younger children also express fears of *bullying* and *stranger danger* and see themselves as vulnerable, because of their own and their parent's *lack of confidence* in them about their judgment to deal with busy roads and traffic. They are afraid of getting involved in accidents (slips and falls, being 'run over' or 'hit' by cars) when walking or cycling. However, although children from this group justify the reasons for requiring adult supervision, they also expressed, in some cases, that they could walk, or indeed have walked to school or other places on their own or with friends without their parent's knowing it, which perhaps reflects the lack of dialogue between children and parents and parents' over protection about their children being able to manage independently. In this regard, the *decision-making process* about the mode of travel to school for younger children coincides with McMillan's (2005) theory that identified parents as the key decision-makers in the household.

Older children aged 12-16 *(n=45)* seem to enjoy significantly more freedom and independence than younger ones: all of the 17 that currently walk to school, do it independently. However, cycling is not a popular mode of transport by children in this group as only 5 of them cycle regularly to school. The reasons for not cycling are mainly traffic related (having to share roads with cars) and also health and fitness or *physical ability* related: not knowing how to, having injuries, not being fit, laziness, and perceiving cycling as uncomfortable (makes them sweat, cold, ill, get dirty). Although the use of cars to travel to school reduces drastically in this group *(n=7)*, the use of the bus service appears strongly in this group (*n=16*).

Parents (*n=34*) do not consider walking or cycling a viable mode for transport either: only 6 of them walk and 4 cycle. Public transport use is also low (*n=7) and car use is high* (*n=15).* Walking is considered unsafe in dark or poorly lit areas and at night times, especially to women that are more afraid of assaults and drunken people. The reasons for not cycling

are: not knowing how to, or being too they are old to do it, health problems and old injuries, and the lack of confidence in having to share the roads with traffic. Female parents, especially, feel more 'vulnerable' about having to cycle on roads with heavy traffic than their male counterparts. With regards to walking with children, parents consider it more risky on narrow or obstructed pavements whilst having to handle children's behaviour and with regards to cycling with children, parents consider it even less viable because it is seen as more dangerous than cycling alone, as it poses the extra responsibility for their children's safety in current traffic conditions.

8.3.2 Perceptions of walking and cycling: mostly positive

As discussed in chapter two of this thesis, previous research (McMillan, 2005; Brunton et al., 2006; Panter et al., 2008; and Pooley et al., 2011) considered the *perceptions of walking and cycling* to be factors that affect the decision-making process about active travel to school. In this regard, the findings of this research, coincide with Brunton et al.'s, research (2006) in that children as responsible transport users are reflected by their clear and definite views about the environmental impact of active travel modes and also, in that children and parents' perceptions towards walking and cycling are mostly positive, as stated by Pooley et al., (2011).

Children (particularly young ones), and parents, recognise the health, fitness, social and developmental benefits that walking and cycling provide. In terms of health and fitness, children and parents value the opportunity for daily exercise to get fit, and keep heart and lungs in good condition, fight obesity, energise them and also relax them. The benefits of being outdoors are also valued, as they consider that fresh air makes them feel better, more awake, and alert. In addition, it helps them to combat depression and stress.

For the group of children (aged 7-11) the 'positive perceptions' of active travel modes are considered the most important enablers. In this regard, they consider cycling is 'cool', 'fun', and cheaper. Parents also consider that cycling is faster, saves fuel and the costs of running a car and gives them the opportunity to avoid traffic queues. In addition, children and parents acknowledge the environmental benefits of walking and cycling in reducing contamination and car pollution and decreasing global warming.

Older children (aged 12-16) and parents that already walk and cycle consider these modes to be easier, more enjoyable and practical than a car. In terms of the social and developmental benefits, they perceive that car use impacts on the health of people and in the quality of life of families and communities whilst active travel modes allow them to

bond with their children and also to socialise with other people in their communities. They also recognise that walking and cycling help them to be independent, confident, it gives them freedom, the opportunity to appreciate the surroundings and be more environmentally aware. In this regard, walking and cycling is considered better than using a car, as driving a car in congested roads and trying to find suitable parking are not considered enjoyable tasks.

However, there are also some negative perceptions with regards to walking and cycling. For example, concurring with previous research (Newton et al., 2011) children and parents participating in this research perceived that walking and cycling require extra physical effort, ability and a level of fitness, therefore, 'not being fit enough', 'not knowing how to cycle', health problems, injuries, and even age, are considered barriers. Further disadvantages are that being outdoors and exposed to the weather whilst walking and cycling makes them uncomfortable and even consider it as being an 'unhealthy' mode, as children and parents participating in this research express fears of getting wet, catching colds or suffering the effects of pollution on their health. In addition, cycling is considered 'unattractive and odd', 'slower' and more difficult to maintain than other modes. Female participants particularly perceive that 'cycling is better for men'.

In terms of *responsibility for safety of dependants*, parents have the perception that cycling is 'not practical to move children' and not even the best cycle design or equipment currently available is safe enough to be able to move a number of children, especially younger ones. In addition, the lack of support of the physical environment seem to limit the active travel activity, for example parents that cycle for leisure in quiet areas do not consider cycling for transport. Parents also limit their children's cycling in terms of distance and time to their immediate neighbourhoods or parks on weekends. The findings in this regard, concur with Brunton's (et al., 2006) and Pooley's (et al., 2011) research, that consider parental responsibility as a factor influencing active travel.

8.3.3 Attitudes towards car use: highly positive and advantageous for families

Attitudes towards car use are also considered important factors that affect active travel to school (Brunton et al., 2006; Panter et al., 2008 and Pooley et al., 2011). The views from children and parents in this research reflected highly positive attitudes towards car use. For example, in terms of *household transport options*, simply 'having a car' or having access to it, according to children and parents involved in this research, makes them use this mode, and eventually, it has become part of their family's transport routine.

Regarding children and parent's *physical ability*, reported health and age related issues, injuries, lack of fitness or simply 'laziness', make transport by car an advantage. In addition, a car is seen by some of them as 'integral to most cultures' and considered by others as 'cool', 'an aspirational purchase' and a 'sign of achievement'.

Previous research (Handy et al. 2005; Brunton's et al., 2006; Pooley et al, 2011) has found that *'family composition'* (e.g. divorce, dual-career and lone parent households, the presence of children or someone else to care for); household factors (*multipurpose journeys, time pressures, commitments, etc*) and *'responsibility'* can encourage car use. In this PhD research, this is reflected by the perceptions of children and parents that car use is more convenient and practical for them, as it facilitates daily life. For example, the convenience of driving, especially when the *weather* is bad is evident because otherwise, getting out with many or younger children is considered a 'struggle' and gives parents guilty feelings. In this regard, the comfort provided by the warm and protected environment of a car, is considered an advantage if compared to the disadvantages of being outdoors and exposed to the weather whilst walking and cycling.

A car also helps to cope with the *busy schedules* during the working week and provides the flexibility to organise the transport routines of each one of the members of their families, because parents consider it more convenient to drive children to school on the way to their work or other places, regardless of distances. However, with regards to *distance*, in most of the cases, it seems that the matter is not of necessity, but of choice. For example, to a certain point, children and parents consider that distance is only an excuse to opt for transport by car, as they acknowledge that in most of the cases, schools are 'never that far away'. Furthermore, some children and parents consider a walk longer than 20 or 30 minutes 'too long' compared with a 5 or 8 minute drive. This, combined with further barriers such as *lack of direct routes, busy roads, blocked or badly maintained paths,* etc. encountered on the way to school (or further destinations), makes the choice of using the car instead of walking and cycling an easy one. In this regard, children and parents alike consider transport by car 'safer' and 'faster' than walking and cycling.

In terms of *time*, a car is considered as advantageous; as they consider that driving takes a shorter time than walking or cycling. In cases of *families with numerous children or different ages* or attending different schools or activities, or in the case of *single parents*, using a car seems more practical because it helps them to be 'time wise' and allows them to move their children and belongings around easily. However, this is another matter of choice in some of the cases, as a few of the children and parents seem to prefer waking

up later in the mornings and using the car rather than waking earlier to be able to walk and cycle.

A car is also seen as extremely important to go to *work* after the school run. In this regard, children and parents highlight the importance of a car for their (and their parents') jobs, and also for expanding opportunities to get jobs that require driving or covering longer distances. In addition, the advantages of using a car not only to go to work after the school run but to go shopping, to leisure places or emergencies, is evident, as in this regard, parents express that driving a car makes 'life easier' and makes them feel more 'free to get around'. A car is also considered more reliable, safer, faster, cheaper and more comfortable than public transport, and in addition, it allows them to go to places further away.

Although the findings of this PhD research have found that travelling by car, has more advantages for families than other travel modes, such as walking, cycling and public transport, and that the attitudes towards car use are highly positive, there are also some *negative perceptions towards car use*. For example, children and parents participating in this research considered that driving a car in some cases is not enjoyable, due to the traffic and problems with finding parking. In addition, they consider that the costs of keeping a car are high. Furthermore, children and parents are aware of the negative impacts on health of car dependence and also the negative impact that car dependence has on the quality of life of families, communities and the environment.

8.3.4 Activity trip chains and multipurpose journeys: the influence of public transport as a factor of influence

Activity trip chains and multipurpose journeys are considered factors that affect the decision-making process about active travel to school (Faulkner et al., 2010 and Pooley et al., 2011). In this PhD research, children and parents also claim that the school journey its just another link in the *chain of trips* during their daily routines and therefore, it does not finish at the school gates but continues to further and diverse destinations such as work, shops, the gym, the doctor, etc. that in many cases involve longer distances. In addition, in families with numerous or younger children, other destinations include child minders, nurseries, playgroups, other schools and homes of family or friends. Therefore, the journey to school is only one of a number of trips that parents make daily. According to the National Travel Survey, although on average, education (including escort) only accounts for only 11% of the trips that people made in Great Britain in 2011, the other trips mentioned by parents in this research, such as commuting for work (15%), shopping

(20%), other types of escort and personal business (20%), etc., account for a higher and more substantial proportion, that according to the same survey, are mainly made by car (Figure 8.3).

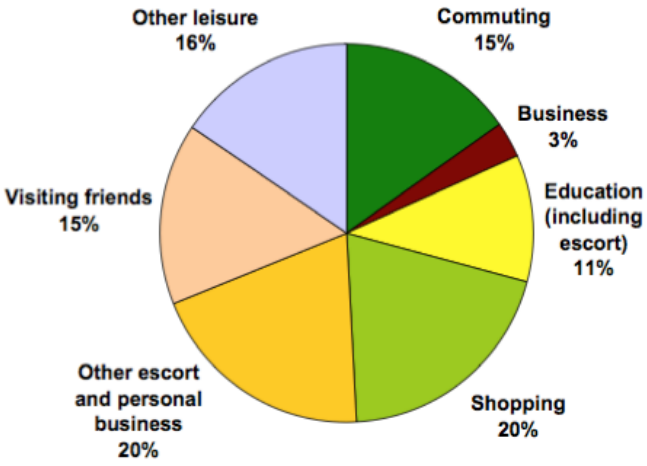


Figure 8.3: Average number of trips made by people in Great Britain in 2011 (Source: NTS, 2011).

In this sense, the children and parents with access to a car that participated in this research perceive that is easier to use it even for shorter distances, as it gives the flexibility to organise the transport routines of each one of the members of their families. However, for older children aged 12-16 that have to go longer distances to secondary schools and for parents that have to travel further away to work or other places that do not have access to a car or have a limited access to it, *public transport* therefore, appears an obvious theme. Hence, the findings of this PhD research about the perception of public transport as a factor of influence on active travel to school adds up to the previous research that did not address public transport in this context. The perceptions of participants of this research about public transport are therefore paramount.

In this regard, such views are contrasting, for example, parents consider that *having easy access to a mix of buses, trams, trains or taxi services* is a positive feature that enables them to cope without a car and therefore to encourage active travel modes in their children to go to school whenever possible. Parents in particular, consider the convenience, low fares, and discounts on bus services, the easy access, reliability and friendliness of taxi services and the access for cycles on trains, as positive features of public transport. However, they consider not having access to suitable public transport as a barrier in reducing car use to travel to further destinations after the school run. Issues such as the lack of routes and connections, services being unreliable and infrequent, being too slow, expensive, uncomfortable, and stressful and the impossibility to access them with bikes,

show that children and parents currently perceive public transport as a poor alternative to car use.

8.4 Community (neighbourhood) level factors: physical and social contexts

According to the synthesis of factors that affect active travel to school, at this level the factors are of two types: social and physical environmental. The views of children and parents reflect strong perceptions about the lack of support for active travel to work, school and other destinations and also on the routes to such places. However, they also reflect the use of some strategies that enable them to active travel, particularly in the case of children and parents that already walk or cycle for transport to school and other destinations.

8.4.1 Strong perceptions about the lack of support for active travel

The perceptions of the lack of support at work, school and other destinations is reflected, for example, in the tight or *inflexible work schedules* and the *insufficient school care* sessions (breakfast and after school clubs) that do not allow parents or their children to opt for active travel modes, that take, in general, more time. The lack of facilities for cycling, such as secure parking, changing rooms and shower facilities at work places, at school and other destinations such as shops, hospitals etc. also add up to the perception of an environment that is not supportive to active travel activity.

The lack of support for active travel is also reflected by children and parents' perceptions that walking and cycling are not the easiest modes, mainly because of factors of the physical environment that act as barriers on the *routes*. For example, in terms of *distance* in some cases, despite children and parents living physically close to their destinations, they report that walking would take them longer because the *lack of a direct route*, a *pedestrian crossing*; a *bridge*; or the presence of *difficult terrain*, or a *blocked, fenced or badly maintained short cut route such as an alleyway*. Walking is also considered difficult on *pavements* that are too narrow to walk with another person, with children or pushchairs, or if the pavement is obstructed by cars. In addition, walking is considered difficult and even dangerous if there are not enough pedestrian crossings or the quality of the walking surface is bad, not maintained or monitored.

With regards to cycling, children and parents feel they have no space on the road for cycling because the *lack of a marked or separated cycle lane* forces them to share the road with traffic in difficult conditions where they feel more vulnerable. Parents feel let down by the lack of cycle ways that allow them to travel with children. In addition, the lack of support of the physical environment seems to limit the active travel activity, for example parents that cycle for leisure in quiet areas do not consider cycling for transport. Parents also limit their children cycling in terms of distance and time to their immediate neighbourhoods or parks on weekends.

With regards to the *space and availability of equipment* required, the lack of storage such as sheds, garages, space for coats, helmets and bikes at home and school, are also considered barriers to active travel. Parents particularly dislike the idea of having to store cycles in the hallways or living rooms of houses or flats. Issues with the way that cycle storage is provided also discourages active travel, because the cycle storage may be secure but not accessible at the time that is required. The reported *difficulties with bike maintenance* and the lack of 'handy' places to maintain or repair bikes for reasonable prices also reflect the perception of lack of sufficient support for the active travel activity.

8.4.2 Enabling strategies in place for active travel

Children and parents participating in this research that already walk or cycle perceive that in order to work, these modes require *enabling strategies* in place. However, this implies a degree of adaptation, extra effort and commitment. In this regard, the findings of this research concur with those of Jones et al, (2010) and Pooley et al, (2011) that found that there is a degree of commitment which is necessary to facilitate walking or cycling as everyday means of travel for some families in special for trips with *'closely-defined time schedules'* such as the school run and the journey to work.

Participants in this research that currently walk and cycle cope with current safety conditions with the use of some *strategies* that include, for example, children sticking to familiar or agreed routes in the case of the ones that have parental permission to walk. Such routes are perceived to be safer, in terms of traffic and also stranger danger. For example, quieter areas, neighbourhoods with *low traffic,* and the company or presence of others on the route to school, that can be other members of the family or friends living nearby. Participants that cycle regularly in particular seem to look for *quieter, safer routes away* from traffic and similarly, the ones that walk regularly also make use of 'shortcut' routes, such as alleyways and more *'pleasant'* routes through parks or around canals.

Children and parents that are regular walkers and cyclists report ‘planning’ ahead as a procedure that helps them to cope without using a car. This requires previous preparation and extra time in order to get ready, for example by carrying and wearing appropriate and adequate equipment to keep them comfortable and safe in case of bad weather conditions. In addition, parents that are regular walkers or cyclists and do not have access to a car cope without one by splitting big tasks like the weekly shopping into small shopping trips during daily work breaks and leaving big shopping to weekends or making transport provisions of bulky items through the use of push along shoppers, buggies, local delivery systems, taxis or other people with access to vehicles. In this regard, they also considered that ‘socialising’ (keeping good contact and communication) with neighbours in their communities and with friends and family enable them to cope better as they could rely for some help on the ones that have a car.

Living within ‘a 5 to 15 minute walk’ to school, work and other destinations, or having an under 30 minute cycle or public transport journey to such destinations, enables parents and carers to cope without a car more easily. Furthermore, having diverse facilities that are needed close by such as shops, leisure, medical and dental practices, etc. or friends and family close by, also enables them to cope without a car. Similarly, having certain flexibility at work, such as part-time, flexi-time and having some support to the travel activity in the shape of cycle racks, showers, changing rooms, etc. also helps them to maintain a regular walking or cycling activity.

These findings show that modes such as walking and cycling that are also considered by the participants of this PhD research as ‘easier’ modes than the car, require, in practice, a more complex level of decision-making that imply a degree of adaptation, extra effort, commitment and planning from children and parents. With regards to this, such findings concur with those of Jones et al. (2010), that considered,

> *Planning and policy frameworks tend to assume that walking and cycling have much more limited planning (and infrastructural) implications than other forms of transport. However in practice, both activities require complex planning decisions at the individual and household scale that may make them more difficult to achieve than (for instance) travelling by car (p.19).*

8.5 Wider (local and national) level factors: Policy

According to the synthesis of factors and variables that affect children's active travel to school, at a wider national and local level, *policy* is the major factor to determine funding of social campaigns for crime prevention and also physical infrastructure supporting active travel at community (neighbourhood) and school levels. In this context, as discussed in chapter three of this thesis, the promotion of active travel modes to encourage behaviour change has been strongly advocated by most of the UK policy agendas and in relation to transport to school, the strategies to increase walking and cycling are majorly campaign based. In this regard, children and parents participating in this research, consider that the *'walking or cycling to school week'* is an enabler to active travel to school, as during this week, people that don't do it regularly, make the effort to walk, cycle, use scooters, etc. to school. Children in particular, report that the reward aspect of the activity (getting prizes, stamps, etc.,) is a motivator for them to walk or cycle more,

> PC-SSI-20: *"when the non-car school week or walking to school week or whatever is on, I leave home earlier with the children so we can walk to school. I force myself to wake up earlier and walk to school, which is good; unfortunately I can't do in regular basis"* (female parent)
> CHA-AG2: *"if you walk to school you get a stamp, if you do it every day you get a prize or something"* (boy, aged 7-11).

However, they are aware that this is an activity that is on for just one week a year and report doubts about if they will be able to do it permanently. In addition, a number of children and parents participating in this research reported not knowing about any 'walking to school bus' running at their school and others reported failed 'cycling and walking clubs' at school for reasons such as school staff being too busy and the lack of volunteers to run the activity.

> CHA-AG2: *"there was a cycling club but it was stopped because the teachers were too busy"* (boy, aged 7-11)
> CHA-AG3: *"well, we tried to do it but it didn't work"* (girl, aged 7-11)
> CHA-AG3: *"they asked for mums and dads to help with the walking bus to school if they would put their name down but I think because there wasn't enough volunteers they didn't do it"* (girl, aged 7-11).

Parents, in particular, consider that cycling and walking campaigns at national and local level, are not effective because they have the wrong approach, i.e. they do not target the main issue: *people won't cycle in traffic.* They also think that that cycling awareness and safety initiatives are often 'ignored' by drivers,

PC-SSI-12: *"cycle campaigning it is ineffectual because it is largely devoted to trying to make things a bit better for cyclists sharing the roads with traffic. That always fails because most people won't cycle in traffic"* (male parent)
PC-SSI-10: *"even where cycle lanes are painted on the road surface drivers ignore them, both legally and illegally"* (male parent).

Furthermore, the strong *'reluctance to change'* attitudes emerged from the analysis and presented previously in this thesis (chapter 7, section 7.4) illustrate children and parents' substantial car dependency, their fears about not being able to use a bike, their pessimistic thoughts about transport issues in the future, and their reluctance to arguments centered on the environmental benefits of car reduction. Therefore, according to this, the main issue for the failure in increasing walking and cycling to school is the current traffic domination and an environment that has been designed around, and become monopolised by, the car originating what has been called a 'car culture' (Brunton et al. 2006) developed during the last century and resulting from the approaches taken by policy developed in the UK, and although until the second world war, cycling was normal as "bicycles vastly outnumbered cars" (Horton, 2011), an 'anti-cycling culture' currently prevails and is reflected in the conditions suffered by cyclists subjected to driver's dangerous attitudes (Aldred, 2011). Furthermore, as established by Pooley's (et al., 2011) research for families with access to them, the car has become the default option, even for very short urban journeys and walking and cycling is perceived as an 'abnormal' thing to do. Similarly, most adults and children that have participated in this PhD research will not consider walking or cycling because of today's prevalent social and physical environmental conditions, which has made them perceive walking and cycling as almost 'unnatural' modes of travel.

8.6 The potential for a shift into active travel to school for families in urban areas

The findings of this research show that although parents and children perceive that walking and cycling are not viable modes under the prevalent safety conditions and despite their strong perceptions about the lack of support for active travel and the positive attitudes towards car and its advantages, a shift into active travel might still be possible because parents and children show strong positive attitudes towards active travel, its benefits and advantages. Proof of this is the evidence in Figure 8.4 showing the pie charts with the frequency of references. In these it can be appreciated that the perceptions of enablers and barriers to active travel to school are approximately evenly divided and also that despite the existence of strong 'reluctance to change' attitudes that reflect car dependency and pessimistic perspectives about a future in active travel discussed in section 7.4, the attitudes open to changes and improvements to the physical, and social

environment; to public transport, to the approach to active travel and to private vehicles argue for a substantial potential of a shift towards active travel in the group of children and parents from families in urban contexts.

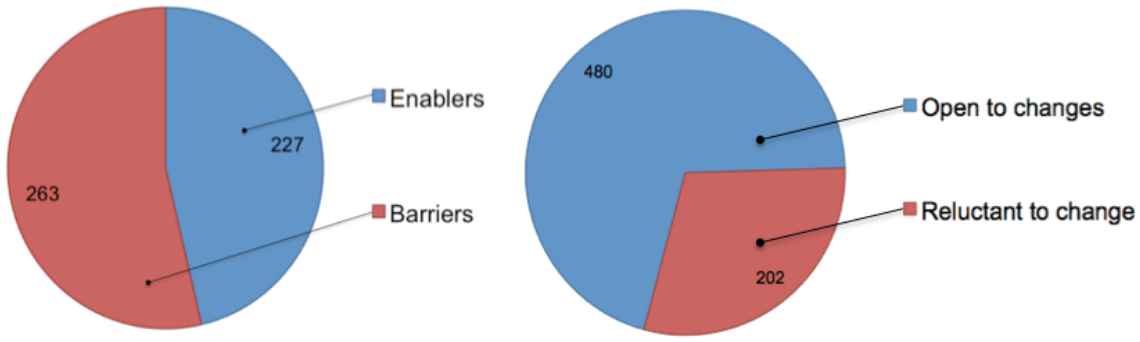


Figure 8.4: Pie charts showing the frequency of references for barriers, enablers, attitudes open to changes and reluctant attitudes

8.7 The emergent issues from the fieldwork

As mentioned previously, the discussion presented in this chapter is based on the results from the empirical chapters 5, 6 and 7, and it has been structured around the *synthesis of factors and variables that affect children's active travel to school*, which was produced in chapter 2 (Figure 2.7), of this thesis. According to the synthesis (shown once more in Figure 8.5), there are diverse factors that affect active travel to school behaviour in terms of choice, frequency and quality at the individual, household and family, community and wider levels. The social context and the physical environmental characteristics are factors that impact the psychosocial variables that at individual level, influence children and parents' (negotiated or not) decision about the travel mode to go to school. Ultimately, policy decisions at the school, local, or national level have an indirect effect on active travel by funding infrastructure projects or other social initiatives.

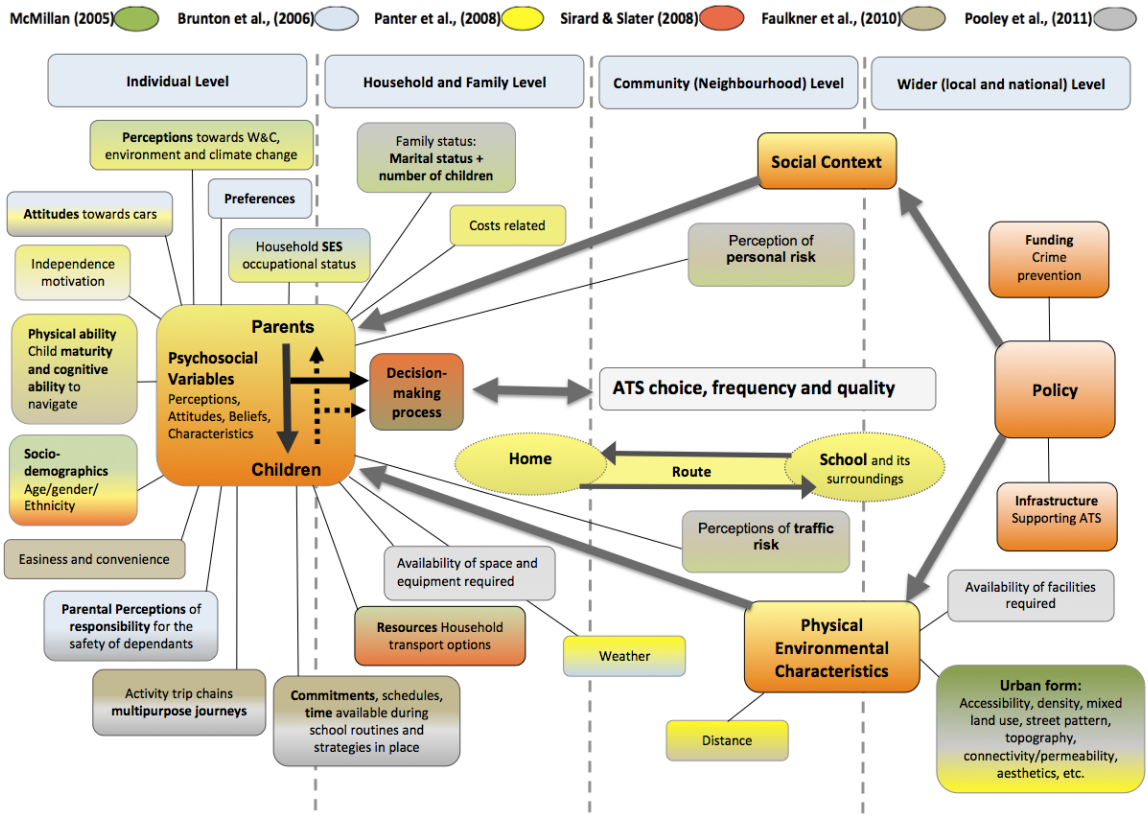


Figure 8.5: Synthesis of factors and variables that affect children's active travel to school

Based on the results from the empirical chapters of this research, further issues have emerged from the fieldwork beyond what was raised in chapter 2 via the literature:

- *Work and other destinations* are direct factors of influence on active travel to school because the school journey its just another link in the chain of trips during the daily routines of parents. Therefore, issues on the routes to work and destinations are also paramount to active travel to school. Previous research on active travel to school has been limited to the route between home and school and has not included factors beyond them.

- *Public transport* appears as a factor of influence on active travel to school. The possibility of having easy access to a mix of buses, trams, trains or taxi services is a positive feature that enables children and parents to cope without a car and therefore to encourage active travel modes to go to school whenever possible. On the other hand, not having access to suitable public transport appears as a barrier to reducing car use to travel to further destinations after the school run. Variables such as cost, access, connectivity, reliability, suitability and image of public transport are aspects related to public transport as a factor. Previous research did not address public transport as a factor of influence in this context.

- *Private vehicle use* appears also as direct factor of strong influence on active travel. However, it is not only the instrumental, symbolic and affective factors that previous research has identified, but also a car dependency fueled by policy decisions that impose a car culture and influence negatively active travel to school.

- *Perceptions of safety* (in relation to the social context) *and perceptions of pleasance* (in relation to the physical environment) appear as counterpart factors to the *perceptions of personal risk* (in relation to the social context) and to *perceptions of traffic risk* (in relation to the physical environment). Quiet, secure areas, *low traffic,* 'shortcut' routes, and *'pleasant'* environments are important factors that influence positively active travel.

The differentiation on what the literature review showed and what resulted from the fieldwork is shown in Figure 8.6: Enhanced Synthesis of Factors and Variables that Affect Children's Active Travel to School.

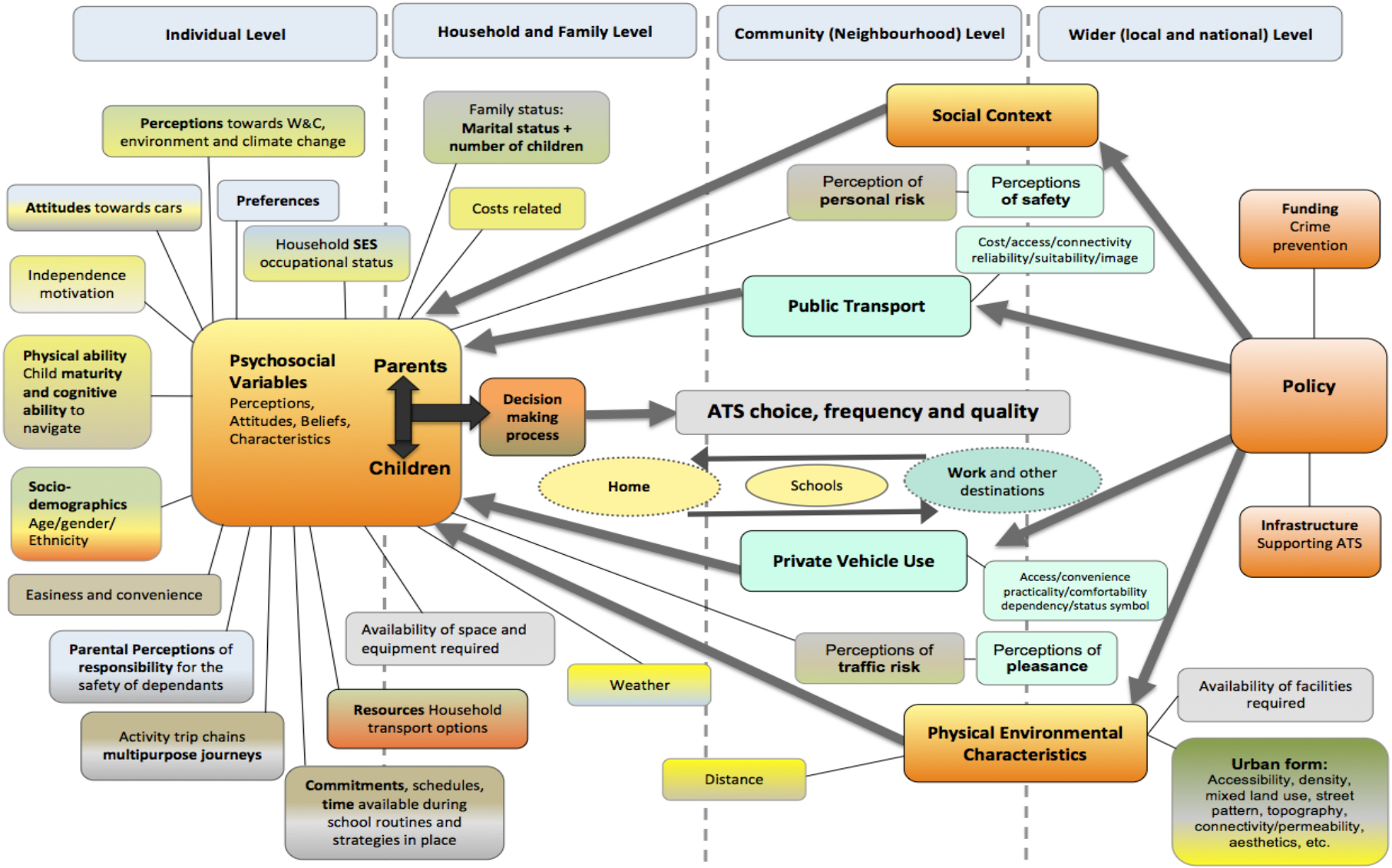


Figure 8.6: Enhanced Synthesis of Factors and Variables that affect Children's Active Travel to School

8.8 A supportive environment for active travel to school

The trip to school, as an everyday mobility, has the potential to reduce car use and increase active travel for short journeys. Therefore, there is need for informed evidence about the kind of interventions that can be effective to increment and maintain levels of active travel. In this context, the aim of this research was to explore children's and parents' perspectives of a *'supportive environment'* for active travel to school. Based on Dunn et al.'s definition of supportive environment for physical activity, a *'supportive environment'* has been defined as "one that provides all the factors that positively influence, enables and encourages people's walking and cycling" (2001 p.3)

When for the purpose of this research, children and parents were asked what would need to change in order to encourage them to opt for active travel in the future, they expressed that as a starting point, a shift in government policy, at a national level with effects at local levels is needed, that considers active travel modes as a viable means of public transport and in advocating its collectivity, puts people using active travel modes such as walking or cycling, first, or in equal position to other people using transport modes on the road, in the best possible conditions, so it once again becomes a natural part of the UK society,

> *CHD-SSI-21: "we should shift to from thinking car first to people that walk or cycle first"* (girl, aged 12-16)
> PC-SSI-20: *"that [cycling] should be another means of public transport, like buses or train, so it should be cheap, easy to use, always available, and with very safe and well-connected routes"* (female parent)
> PC-SSI-10: *"the government would really need to convince all people that cycling is a viable form of transport"* (male parent)
> PC-SSI-12: *Cyclists need to be put at the same level or even better: cyclists should be priority on the roads* (male parent).

The aspirations expressed by children and parents participating in this research coincide with the proposals of traffic planners, urban designers, developers (Dales, 2013; Gehl, 2010; Hamilton-Baillie, 2008; Shaftoe, 2008; Jones et al. 2008) and also of current guidance (Manual for Streets 1 and 2) that advocate for the needs of people over the needs of vehicles, as discussed in chapter 3, section 3.4.5 of this thesis.

8.8.1 People first

A holistic approach to urban street design has emerged in the UK that puts people first and aims to achieve a balance of the functions of streets, not only as 'Links' for movement but also as 'Places' for social interaction (Jones et al., 2008; 2011; DfT and CLG, 2007; CIHT,

2010). However, as identified in the literature review, the 'how' to do it better seems an ongoing challenge, as the suggestions appear numerous and varied, for example: Dales (2013) recommends to focus on 'redesigning British streets' in terms of its layout and context in order to: reduce traffic speeds to 20mph; increase the width of footways; decrease the width of carriageways; and reduce the quantity of signs and railings. Gehl (2010) recommends to capitalize on the unique qualities of the public space; create a better balance between traffic and other city users; improve conditions for walking, staying and cycling; ensure access for all; and improve the visual quality of the street scape. Hamilton-Baillie (2008, 2000) recommends integrating traffic and pedestrian activity in a 'shared space'. Shaftoe (2008) advocates for more effective 'convivial' urban places in terms of 'rich', 'vibrant', 'joyous', 'legible' and 'mixed use' environments designed and developed with a human approach and scale. And, national guideline: Manual for Streets 1 and 2, aim to increase the quality of life of streets through 'better' design and the application of the principles of inclusive design in order to create people-oriented streets. Nevertheless, it is recognized that a) there is a complex mix of activities, physical facilities and people's needs and aspirations that need to be considered in achieving quality in the environmental improvements of streets; b) it requires the acknowledgment of the importance of the involvement of users during the design stage and c) this requires time, planning, strategy and the collaborative approach between the different professions involved on the planning and design of the street. Furthermore, a shift away from current car-oriented policy is required (Mackett 2011).

8.8.2 Policy to create an active travel culture

A shift of policy approaches putting cycling first has originated a 'cycling culture' in other societies; for example, in the late 1950s in Copenhagen, a shift in urban planning policy from thinking 'car first' to thinking 'bike first' resulted in a continued innovation and investment in protected cycle infrastructure which has been the key to encourage their citizens to choose cycling (Horton, 2011). In this regard, parents, particularly, seem aware of this and based on their experiences or knowledge, mentioned cities such as Amsterdam and Belgium in Europe and Bogota in South America as examples of cultures that have planned for cycling:

> PC-FG1: *"It would be great to have cycle ways like in Holland or Brussels, like in Belgium, they have areas on the main roads that are designated for cycles, completely separated from the cars"* (female parent)
> PC-FG2: *"I also visited Amsterdam, I spent one day cycling through the city and it was great. They have cycle ways, only for cycles, separated from cars, with green lights and*

everything. I hired a bike, it was cheap I saw many people cycling, many families cycling together, I saw a mother cycling with three children, it was amazing! I enjoyed it a lot. Over there the cycles have their own roads, they are completely separated from the car roads" (female parent)
PC-SSI-18: *"like in Bogota, they have a cycle way and you can ride your bike on it throughout the city"* (female parent).

However, it is not only the planning for cycle traffic but also the planning for more 'livable cities' that makes such cities examples of active travel culture (Colville-Andersen, 2011; Shaftoe, 2008). In this regard, the author of this thesis concurs with the thinking that 'people walking and cycling first' instead of 'car first' brings further implications, as it does not get limited to the provision infrastructure for 'walking' and 'cycling' only, but implicates all that comes behind to support the 'people' that walk and cycle, until it hopefully develops into an 'active travel culture'.

In order to build and also maintain such an 'active travel culture', as expressed by children and parents through this research, the prevalent traffic conditions need to be challenged, the current attitudes changed and a supportive environment for active travel needs to be created; and this, from their point of view, could be achieved through five different but simultaneous approaches in policy:

- 'Creating' an easy, pleasant, safe and barrier free physical environment for active travel;
- 'Creating' a social and economical environment for active travel;
- 'Providing' a supportive public transport;
- 'Convincing' people of the benefits of active travel through promotion, incentives, education and innovations; and
- 'Imposing' restrictions to the use of private vehicles

8.8.3 'Creating' an easy, pleasant, safe and barrier free physical environment for active travel

Children and parents engaged in the PhD research expressed that policy should have a strong focus in creating an easier, pleasant, safe and barrier free physical environment for active travel. The aspects to be addressed in order to achieve such an environment include elements of urban form such as infrastructure, urban design, distance, land use and provision of facilities. Furthermore, such an environment appears different for cycling and walking, because the availability of infrastructure seems very important for the first one, whilst urban design seems to matter more for the second.

For example, in terms of *infrastructure for cycling*, children and parents suggest making cycling the quickest way to get around the city instead of driving a car, by providing two types of *facilities for cycling*: 'cycle lanes' on roads shared with other vehicles and a more safe system of 'cycle ways' and 'cycle paths' which are well-connected and fully segregated from motorised traffic, to increase safety and appeal to a range of abilities (including children's) and with its own speed limits and traffic control system, similar to the ones used in other cities in Europe such as Holland or Brussels, etc. Children and parents conceive that cycle ways and cycle paths should be protected from weather and be physically wider, to provide them with sufficient space to allow them to cycle accompanied by other people or to be used by bikes with capacity for more than one person. In addition, they suggest that authorities provide a 'massive', 'cheap' and easy '*community hiring system'* that can be available at all times near schools, markets, bus, train and tram stations, in neighbourhood communities of every city and town. They conceive that the system is flexible enough to provide diverse types of bikes for families cycling with numerous or young children, and also that helmets will not be required as the probability of accidents with cars will be minimal. As the use of cycles will be massive, children and parents also propose having *'secure and sheltered storage'* and *'cycle maintenance systems'* such as 'bike doctor' in neighbourhoods and schools.

With regard to the *walking infrastructure*, children and parents suggest improving the *design of footways* which addresses issues with safety, for example, by providing wider pavements that allow them walking in the company of other people, or dropped kerbs to improve the accessibility of people pushing prams, trolleys, or using wheelchairs, etc. In addition, they suggest providing safer and smoother surfaces such as 'tarmac' that work well in all weather conditions and avoiding cobbled surfaces. In terms of maintenance, they suggest the provision of bins and the regular monitoring and maintenance in order to ensure that footways are kept clean, tidy and free of obstructions, and also better lighting, more seating and resting spots along walking paths and better wayfinding. In terms of connection, they suggest better connection of footways through the construction of pedestrian bridges, or the provision of more traffic lights, pedestrian crossings ('zebra' or 'pelican' type) and wardens in main roads or around schools or by providing more footways 'away' from traffic roads and surrounded by greenery.

Children and parents consider *urban design* important, by expressing wishes for a more *green and 'pleasant' environments* with fewer roads for cars and more *attractive* areas for people's enjoyment and socialising. Furthermore, they urge for such communities to be more sustainable. In this regard, they consider beneficial to increase the density of

housing and make the buildings energy efficient through the use of solar and wind technology and by the use of green spaces and vegetable gardens where people can respectively exercise and produce healthy food. In addition, they consider that every building; including schools will have safe and sheltered places to store bikes, etc. easily available at all the times required. In addition, in order to overcome further issues with *weather,* children and parents gave their ideas which included the provision of sheltered facilities that protect active travelers from the elements and by incentivising a mass market for equipment such as waterproof gear, etc. to be available everywhere.

In terms of *distance, land use and provision of local facilities*, children and parents consider that policy should focus on reducing trip distances by providing schools and a variety of facilities within short walking distances from homes and by re-invigorating local shops, markets, independent traders, etc. in order to facilitate active travel modes. They conceive such facilities would work around the needs of people by offering 'walk-in' type services, '24 hours' or 'extended times' and by providing 'free' local deliveries. This will reduce the need for trips made by car to access further destinations after the school run and also endorse policy approaches such as 'Every Child Matters', that aim to achieve 'spatial concentration' of social services in order to reduce trip distances to promote accessibility and inclusion, or most recent 'Town Centre First' policies that aim to bring back the role that local shopping areas used to play, beyond retail, to a more social one. In this context, there seems to be a definite potential for change in the perceptions of what the local communities have to offer to contribute to the maintenance of an 'active travel culture'. For example, parents and children express that in a future based on walking and cycling, they would like to see a variety of facilities needed on offer and they would like to do their shopping in the local communities as a means to reduce the trip distances and return to a community life, that currently seems threatened by the use of cars. In this context, active travel could potentially be both a social and cultural factor that will make people use the local shopping areas instead of driving to the out-of-town shopping centres.

Many of the aspects of infrastructure and urban design for cycling and walking that have been mentioned by children have been partially addressed by current theory, policy and practice that have been the focus of discussion in the literature review undertaken in chapters 2 and 3 of this PhD research. For example, limited research existed to support the hypothesis that intervening urban form of communities will increase active travel to school (McMillan, 2005), and in addition, current strategies, policies and plans have assumed that providing 'school safety zones' (National Road Safety Strategy), facilities for walking and cycling (Travelling to School Initiative) or through the 'design of more attractive, cleaner, safer and greener' (The Urban White Paper 2000) would increase the

number of people opting for these modes. Hence, based on the findings of this research, it can be argued that intervention of the physical environment has a strong influence in encouraging active travel to school in the families of urban areas engaged in this research. However, such suggested interventions are not limited to certain aspects around or on the route to school, but comprises wider aspects of spatial planning, sustainability and urban design at wider (local and national) and community levels.

The aspects addressed above such as infrastructure, urban design, distance, land use and provision of facilities have all been suggested by children and parents as focus of policy in order to create an easier, pleasant, safe and barrier free physical environment for active travel. In this context, the level of detail obtained from this research about the way the physical environment should be from the point of view of children and parents addresses the issue of lack of guidelines for improving the quality of the walking and cycling environment that local authorities currently face and this contributes to narrow the gap between policy and practice discussed in section 3.3 of this PhD thesis. However, it is necessary to highlight that although according to this PhD research the physical environment plays a very important role in encouraging active travel to school in the future, it is not the sole aspect that needs to be addressed, as, according to children and parents, there are also other aspects that need to be dealt with.

8.8.4 'Creating' a social environment for active travel

In terms of the social environment, children and parents consider the importance of policy focusing on the 'school approach' to active travel, the creation of 'active travel networks' and in the 'approach at work'.

With regards to *school* policy, children and parents consider that the approach taken by this has a key role to play by providing childcare and training and by keeping the motivation and encouragement for children and parents into active travel in the future. For example, children and parents consider that the provision of a more affordable out of schools hours childcare (such as breakfast and after care clubs) and dedicated school transport are paramount in supporting the option for active travel particularly in the case of working parents. In this regard, current policy (Every Child Matters) already addresses this by providing pre and post school childcare facilities and by giving children and parents access to facilities and services at the school site from 8am to 6pm. However, limitations, lack of provision or the need of more affordable before and after school child care facilities were aspects raised as barriers by some parents involved in this research. On the other hand, parents and children also highlight that the *training* provided at school would be

crucial in encouraging children to cycle, as it will entail learning how to ride a bike, to understanding traffic rules or even more practical aspects such as bike maintenance. This could potentially address the issues of safety raised by parents regarding their fears about children being able to negotiate traffic and children's lack of confidence with bikes and with traffic. In addition, in terms of motivation, the *promotion* of 'walking and cycling buses' and 'clubs' at school is mentioned as a potential influence to convince children and parents to cycle to school and reduce car use in the future. However, the implementation of such schemes need to be permanent and consistent in every school throughout the UK, in order to overcome the issues discussed in section 8.5 of this chapter.

Parents and children suggest the creation of *'networks'* supporting active travel activity at community levels in order to motivate groups of people to get involved in outdoor activities and events through the use of communication technologies. This reflects that parents and children seem to value the opportunity for social interaction that active travel provides and together with the use of massive communication networks such as 'Facebook' or 'Twitter' can be of advantage into developing effective strategies that make it easier for people to engage in active travel.

With regards to *work,* children and parents consider that policy should focus on supporting people working more locally in their communities; supporting more 'flexible' practices at work places; and also in providing spaces with teleconference facilities close to home or in local schools at no more than '30 minutes' distance.

> PC-SSI-20: *"I suppose if there were more policies for companies motivating workers to cycle to their work places"* (female parent).

Current policy 'Smarter Choices' already links work to school and encourages school and work individualised travel planning, and also supports car clubs and teleworking. However, such practices are limited and yet need to be widespread throughout the country. Furthermore, according to Pooley et al, (2011),

> *"Policy can address the development of more family-friendly welfare policies that enable one parent to spend more time with children and thus give space and time to walk or cycle rather travel by car; flexible working hours that allow adults to fit work-related journeys around other activities"* (p. 1607).

In this regard, the author of this research concurs that further policy is needed that addresses family-friendly practices that benefit parents in full time work and single parents opting for active travel modes.

8.8.5 'Providing' a supportive public transport

Children, parents and carers suggest that the government should invest in increasing and creating a more 'attractive' and 'improved' public transport system so it becomes more appealing compared to driving. They also consider that a combination of public transport (bus, tram, train, etc.) will still be needed for people to travel long distances or access distant areas which are difficult to reach by walking or cycling only,

> PC-SSI-10: *"I think public transportation will play a bigger rule, if that is the scenario; because the nature of people is to move from one to another location. The government have to really double up or triple up the capacity of current public transport services, meaning that more efficient, frequent and more route covering. And definitely should be less expensive to use public transport than to drive a car, otherwise, it will be better to keep driving a car"* (male parent)
> CHC-AG1: *"Government should be investing much more money into public transport, offering cheap prices, rewards and improved services"* (boy, aged 12-16)
> PC-SSI-13: *"and more public transport, really. The government needs to look at the package of travel, the price of travel, and so on, more buses running on time"* (female parent)
> PC-SSI-12: *"there would be better public transport access to outlying areas and that public transport would carry bikes"* (male parent)
> PC-FG2**:** *"depends on the distances to places where we need to go. If is near, I imagine we all be walking, but if it is far by bus, train or tram. That would have to be a very good transport system"* (female parent).

Therefore, the suggestions are to provide a free or *low-cost* service in order to benefit (particularly) families with a high number of members that have expressed concerns about the prices on bus fares that they would need to afford if they would abandon car use. They give suggestions for a reward system that incentivise the use of a combination of active transport modes and public transport, so they become preferred modes above the car for long distance travel. In this context, children and parents consider it important that the future public transport comprises a mix of the most common systems (tram, metro, buses, trains, etc.) and more innovative alternatives such as 'pedal buses', 'cycle taxis', 'collective cycling transports' and 'community-based hiring systems' in order to provide people with choice and in this way to overcome the issues with practicalities that for example, families with children face currently in walking and cycling or using public transport.

In terms of *improvements,* children, parents and carers consider that the public transport service should be *faster* allowing people to transport to places quicker than by private transport. Furthermore, they consider that a *more efficient* and convenient public transport system in terms of connection, frequency, and reliability and also in terms of comfort, cleanliness and maintenance, should be offered in the future in order to stimulate travel by

this mode. Regarding safety, in order to overcome current issues with public transport, children and parents express their views that this should be improved in and around the service provision, especially at night times with the presence of more 'staff' or 'authorities' monitoring and handling unacceptable behaviour and crime.

Children and parents seem to be persuaded by the collective interest to improve the environmental qualities and the quality of life, for example, they express views that public transport should be *'energy efficient'* through the use of a 'greener' system able to generate its own power by solar power or 'self-powered mini-turbines' or by the use of natural-green fuels with reduced emissions and pollution. In addition, they consider that all future designs of public transport should be *accessible* by providing generous and sufficient space to comfortably carry cycles, pushchairs, wheelchairs, electric scooters, etc. in order to address current barriers faced by children and parents in the use of public transport.

In this regard, children have been the focus of UK transport governance (discussed in section 3.2.5 of this thesis) aiming to improve accessibility to public transport by encouraging them as passengers through specific schemes such as timetable alterations and pricing strategies. However, although current policy addresses public transport to school provision for children and young people in certain conditions, it does not benefit the family as a whole. Therefore, according to the information provided by this research, policy should be aimed at increasing the performance of public transport and also should be addressing the development of more family-friendly public transport policies that enable children and parents to use a more attractive, low-cost, comfortable, faster and efficient service, rather than traveling by car.

8.8.6 'Convincing' people of the benefits of active travel

Children and parents consider that in order to shift attitudes towards walking and cycling, policy should focus on *'convincing'* people of the benefits of active travel by 'incentivising' the choice for active travel, by 'promoting' the benefits and image of walking and cycling, by 'educating' about active travel and also by 'innovating' the active travel equipment.

In terms of *incentives,* children and parents consider that 'rewarding' people rather than 'punishing' them would encourage people to opt for active travel more easily. Suggestions for incentives include providing bikes for free or by a credit system; a low cost 'cycle hire

system'; by reducing taxes or paying money to people that walk or cycle; or rewarding per every mile, for example with vouchers, discount cards, etc.

With regards to *promotion*, children and parents consider that in order to succeed, policy should focus on promoting the positive aspects of active travel in contrast to the negative effects of car use on health, fitness and the environment through campaigns from the authorities, schools and hospitals. They also suggest that besides the health and fitness benefits, the government should promote a 'stylish', 'cool' and 'green' image of walking and cycling through the use of mass publicity campaigns on TV, endorsed by celebrities and other public figures.

In addition, children and parents consider that *education* should be adopted as government policy, as in the shape of 'awareness' will help shifting attitudes towards pedestrians, cyclists and other vulnerable users of the environment such as children; and in the shape of 'training', it should start from earlier in life and all the aspects of cycling.

> PC-SSI-20: *"other policies would make drivers more considerate and friendly towards cyclists" (female parent).*

With regards to the *innovation* of active travel equipment, children and parents conceive that the designs of the equipment that facilitates active travel should be improved. For example, they consider that cycles should be more 'comfortable', 'easy' to carry around, especially in public transport, 'versatile' enough to respond to the weather conditions and capacity demands; and more powerful, varied and accessible to be used by families with numerous children, people with disabilities or older people.

Currently, as discussed in section 3.4.3 of this thesis, the promotion of active travel modes in the UK policy agendas have relied mostly on the promotion of walking and cycling strategies at school level. It has been found that these kind of intensive supported behavioural interventions reports substantial increases over the short-term, however, it's long-term effectiveness has been strongly linked to family support. In addition, the promotion of walking and cycling alone may not be sufficient. On the other hand, at national level, promotion of active travel has relied on public heath campaigns that have also been found to have a short-term positive impact but its sustainability is debatable. In this context, the aspects suggested by children and parents as a focus of policy in order to shift attitudes towards walking and cycling: incentives, promotion, education, and innovation seem as creative approaches that could be more effective.

8.8.7 'Imposing' restrictions to the use and traffic of private vehicles

Children and parents propose to create policy to restrict the use of cars for private purposes and its traffic in order to shift the attitudes from thinking 'car first' to a 'pedestrian and cycling first'.

> CHC-AG1: *"abandon privatisation"*
> CHA-AG2: *"get rid of cars or reduce cars"*

Although 'imposing' restrictions is the least popular of the five approaches mentioned by them, suggestions on how to do it include '*banning cars from circulating and parking'* from central zones of the city and particularly around schools with the view of achieving more people walking and having cycling friendly areas. Current policy and practice already addresses this, however, children suggest punishing people that insist on parking their car around such zones (clamping, fining, putting in jail) as an effective strategy to change people's current behaviour and reduce car use for short trips particularly.

Children and parents are also in favour of *increasing the cost of running a car* by the use of a 'pay as you go' system, 'congestion charges', and 'road tolls' to discourage the use of cars for private purposes in the future and to subsidise the use of bikes and public transport. Increasing car costs as a way to discourage car use has been addressed also by current research. For example, Pooley et al. (2011 p.1607) suggest that an increase in walking and cycling *"will only be achieved when car use becomes significantly more costly and less convenient, thus giving greater incentive to overcoming household (and other) constraints".*

In addition, children and parents suggest upgrading driving standards to adopt *'strict liability'* for motorists involved in accidents with cyclists and pedestrians. In this regard, Aldred (2011) and Pooley et al (2011) have argued the need to bring current driving standards in line with best European practice, as a way to complement the provision of infrastructure for cycling and increase the chances of success.

Finally, children and parents expressed the need to lower the car speed near main roads and in neighborhoods, particularly around schools, and further use of traffic calming elements such as speed bumps. Current policy (Traveling to School Initiative and, National Road Safety Strategy) and practice already addresses restrictions on vehicle speeds and traffic calming measures, for example, through 20mph zones around schools. A 20mph speed has been found successful in smoothing traffic flow and reducing emissions,

improving pedestrian (particularly children's) safety, improving conditions for walking and cycling, generating more sociable places, and reducing public spending in road collisions (Platt, 2012). 20mph zones are also common in residential areas of cities in the UK and other cities in Europe as part of road safety strategies.

The views to impose restrictions to private vehicle use expressed by children and parents suggest that policy makers should be aiming at reducing the current functional value of private cars and not be aiming at banning people from cars completely, but only at stimulating people to use their car mores selectively and in this way to encourage them to use other travel modes such as walking, cycling and public transport whenever possible and reasonable.

8.9 A synthesis of the requirements of a supportive environment for active travel to school

A critical synthesis of the requirements of a supportive environment for active travel to school is shown in figure 8.7. In this synthesis, the five different but simultaneous approaches for policy at individual, family, community and wider (local and national) levels are shown; and the types of interventions required under each aspect are presented.

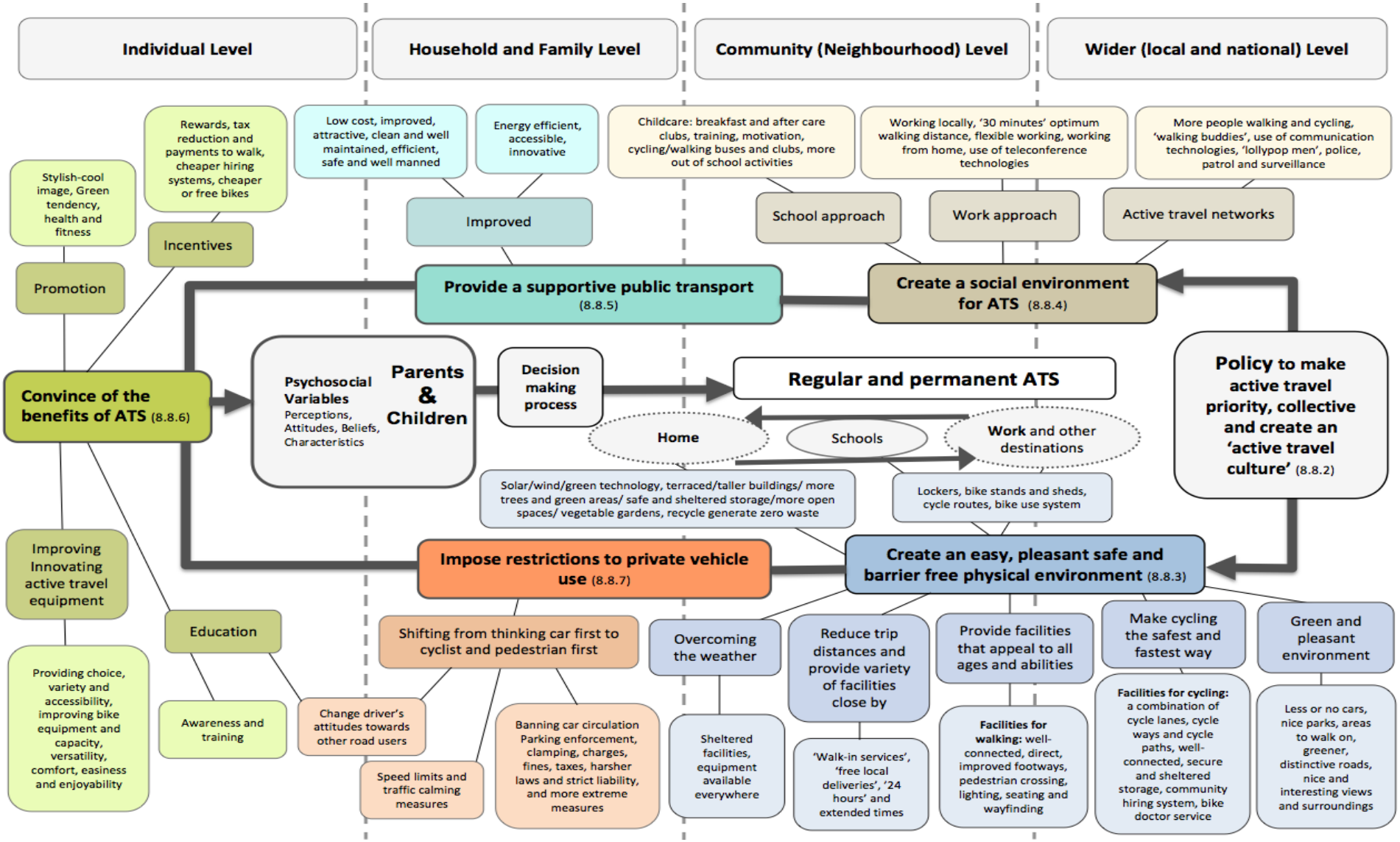


Figure 8.7: Synthesis of the Requirements of a Supportive Environment for Active Travel to School

8.10 Policy implications

The ecological perspective, (Bronfenbrenner, 1979,1986) mentioned earlier, is useful to provide a context for integrating policy affecting children and parents' active travel across the national, community, family and individual levels in this research. The ecological perspective adopted stipulates that child development is influenced by the individual, family and environmental contexts; therefore, social and physical environmental policies are most likely to be effective when they address the myriad influences that leads to, and helps to sustain regular and permanent active travel behaviour.

Based on the evidence provided by this research, it can be argued that in order to create and implement policies that will work on an integrated basis, cutting across traditional boundaries of policies (from diverse areas such as education, health, sustainability, transport planning, social justice and inclusion) in which the journey to school has been framed in the UK, pose a challenge. The diverse exclusionist, ambiguous, conflictive or inconsistent approaches often taken by such policies, can be blamed for the reason why years of effort and a series of ongoing government strategies and schemes the shift towards active travel modes is still negligible. On the other hand, they also have proved the need for a more holistic and visionary approach in theory and for better informed, more realistic targets in practice.

The emergent issues from the fieldwork of this research show that although parents and children perceive that walking and cycling are not viable modes under the prevalent safety conditions; despite their strong perceptions about the lack of support for active travel activity and their inclination towards car use; a shift into active travel might still be possible, because their attitudes are open to changes and improvements in areas of the social, physical and transport environment. But the main point that results from this research is that a shift in policy is required that challenges the prevalent traffic conditions and makes active travel priority and collective in order to create an 'active travel culture', as other countries have done successfully. To achieve it, five approaches in policy can be recommended:

- Create an easy, pleasant, safe and barrier free physical environment for active travel
- Convince people of the benefits of active travel
- Provide a supportive public transport
- Create a social and economical environment for active travel

- Impose restrictions to the use of private vehicles

In order to make them effective, in theory, the five approaches should work in conjunction and simultaneously; be part of a long-term goal in a national action plan for active travel; and be adopted by all groups of society. However, in practice, assigning weighting factors may help to establish work priorities, whilst proposing possible stakeholders who could credibly act upon them can assign responsibilities at the levels required. In addition, establishing specific targets could help to fill the gap in current behaviour and provide the basis for future actions. Therefore, as shown in Table 8.1 (Linked to Figure 8.7), three levels of priority in policy approach are proposed: the policy measures; the sections of this thesis where the topics are addressed; the possible stakeholders and the target group priority recommended are described in detail in the same table. It is important to clarify that the proposals at every level comprise ongoing policy approaches to the following levels.

At a first level of priority, two types of ongoing approaches need to be adopted in conjunction: the interventions to the physical environment to support active travel activity and the work in the promotion, education and incentives to make active travel modes more attractive and appealing to people of all ages and abilities. However, based on the results of the fieldwork of this research, it is recommended that policy targets children attending primary and secondary schools as the priority groups because there is an specific need to fill a gap in their current walking behaviour. As discussed in section 1.1.4 (Chapter 1) of this thesis, the proportion of children who walk to school and live between 1-2 miles reduces drastically compared to the percentage of those that live less than a mile from school in both groups of children: 5 to 10 year olds and 11 to 16 year olds (NTS, 2011). In addition, walking to school levels, for children living between 2-5 miles is under 10%. Therefore, as shown in Figure 8.8, there is an important potential to focus in increasing walking and cycling for both age groups of children living between 1-2 miles and also in motivating cycling in the older group of children (11 to 16 year olds) that live between 2-5 miles from school.

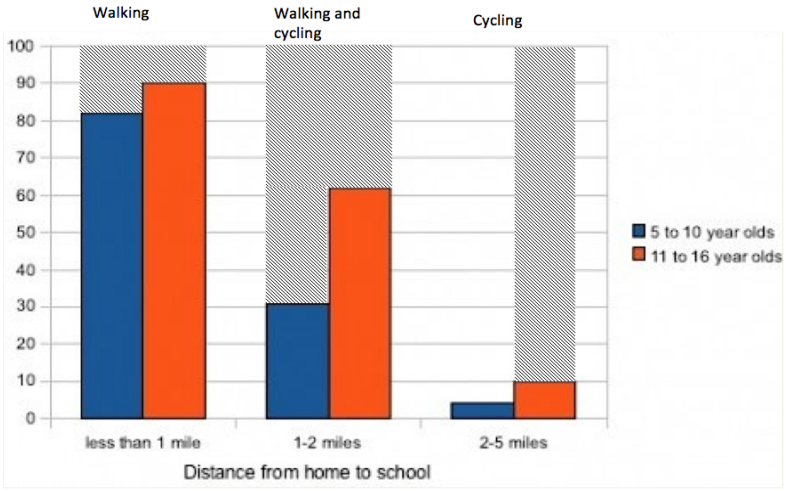


Figure 8. 8: Proposed policy target to increase walking and cycling levels in children living within 5 miles from schools (Source: adapted from NTS, 2011)

Furthermore, according to the findings of this research, the most important aspects that would encourage children and parents into active travel to school are 'changes to the physical environment' in the first place; followed by 'changes to the approach to active travel' particularly 'incentive' based, which justifies to focus in the two kind of ongoing approaches suggested. Suggestions are to adopt a 'reward' rather than 'punish' system. Therefore, incentives include providing bikes for free, at a low cost or rewarding per evey mile. Policy and mass media should focus on promoting the positive aspects of active traves in contrast to the negative effects of car use on health, fitness and the environment. Campaigns should promote a 'stylish', 'cool' and 'green' image that is attractive to children and young people. It is also recommended that education: cycling training and awareness is implemented at this first level, as it would target the *psychological barriers* that may affect especially to children, as it is considered that novice people are more afraid of appearing inept, embarrassed and humiliated in public due to cycling issues (Horton, 2007). In addition, education also could help shifting attitudes from earlier in life into all aspects of cycling. As stakeholders, the National Government, Local Authorities, voluntary and community organisations, mass media, and educational establishments are held responsible for implementing integrated actions.

At a second level, similarly to the first level, two further approaches need to work in conjunction: The provision of a bus based supportive public transport and the creation of a social and economical environment for active travel. Both approaches are also ongoing and target the main aspects that; according to the results of this research; affect parents' decision-making about active travel to school (discussed in sections 8.3.4 and 8.4.1). Policy should be aimed at increasing the performance of public transport and also should

be addressing the development of more family-friendly public transport policies that enable children and parents to use more attractive, low-cost, comfortable, faster and efficient service, rather than traveling by car. However, the recommended priority in target is not limited to the group of parents, but also to include young people, employees and pensioners that are also groups that are affected by the *social and affective factors* hat discourage bus use (Stradling 2011). The responsibility at this level is on National Government, Local Authorities, voluntary and community organisations, educational establishments and also of private sector and employers.

At a third level, National government policy needs to adopt a 'cycling and pedestrian first' approach and Local authorities need to implement strong restrictions to the use of private vehicles, in order to target the group of frequent drivers, that are mostly affected by *the symbolic and affective functions* that motives car use (Gatersleben and Uzzell, 2007; Steg, 2004; Ellaway et al, 2003; Steg et al., 2001) and therefore, the most resistant to change. However, at this level it could be expected that people's motivation to active travel to a great extent would be consequential on the changes to the physical environment, public transport and social and economical contexts discussed above.

Finally, as Gehl (2004) declared, changing a 'car' city culture into a 'city for people' is a gradual process that can take several decades, but as cities are ever changing, it is completely possible if the change is based on understanding how people use and experience the cities; in what can be learnt by looking at other successful cities and also in following an strategy on three levels: immediately, inside a short span of years and at long-term.

Table 8.1. Recommendations for Policy to Create an Active Travel Culture

RECOMMENDATIONS FOR POLICY TO CREATE AN ACTIVE TRAVEL CULTURE					
PRIORITY	**POLICY APPROACH**	**POLICY MEASURES**	**Sections**	**STAKEHOLDERS**	**TARGET GROUP PRIORITY**
1ST LEVEL	Create an easy, pleasant, safe and barrier free physical environment for active travel	• Provide facilities for walking and cycling that appeal to all ages and abilities • Reduce trip distances and encourage mix of uses, free local deliveries, walk-in services, and extended times • Make cycling the safest and fastest way of transport • Provide sheltered facilities to overcome the weather • Provide facilities at school, work and further destinations • Provide a green, pleasant and sustainable urban environment	8.8.3 7.3 to 7.3.7	National Government Local Authorities Voluntary and community organisations	Primary Schools (5 to 10 year olds) Secondary Schools (11 to 16 year olds)
1ST LEVEL	Convince people of the benefits of active travel	• Support the improvement and innovation of active travel equipment • Educate: training and awareness • Promote an stylish-cool image, green tendency, health and fitness benefits through large scale campaigns • Incentive active travel: through rewards, tax reduction, payments, saving hiring systems, free provision of equipment	8.8.6 7.5 to 7.5.4	National Government Mass media Educational establishments Voluntary and community organisations	Primary Schools (5 to 10 year olds) Secondary Schools (11 to 16 year olds)
2ND LEVEL	Provide a supportive public transport	• Provide an improved, efficient, low cost, clean and well maintained, safe and well manned public transport • Provide an energy efficient, accessible and innovative (in terms of image) service	8.8.5 7.7 to 7.7.5	Local Authorities	Young people Parents Employees Pensioners
2ND LEVEL	Create a social and economical environment for active travel	• Encourage school approach to active travel: training, motivation, cycling/walking buses and clubs, extended childcare, extra out of school activities • Encourage work approach to active travel: opportunities to work locally, flexible working, working from home, use of teleconference technologies • Create active travel networks using communication technologies via Facebook, twitter, etc., encourage 'walking buddies', more police patrol and surveillance	8.8.4 7.6 to 7.6.3	National Government Local Authorities Voluntary and community organisations Educational establishments Private Sector Employers	Young people Parents Employees Pensioners
3RD LEVEL	Impose restrictions to the use of private vehicles	• Adopt a 'cycling and pedestrian first' attitude • Impose speed limits and traffic calming measures • Ban car circulation in cycling and pedestrian zones • Increase costs of running a car through charges and taxes • Park enforcement: clamping, fines • Adopt harsher laws and strict liability	8.8.7 7.8 to 7.8.6	National Government Local Authorities	Frequent drivers

8.11 Summary

This chapter presented the discussion based on the results from the empirical chapters 5, 6 and 7. The discussion was structured around the *synthesis of factors and variables that affect children's active travel to school*, which was produced in chapter 2 of this thesis. According to the synthesis, there are diverse factors that affect children and parents' active travel to school behaviour in terms of choice, frequency and quality at the individual, household and family, community and wider levels.

At the individual and family level, the most significant factors that affect children and parents' decision-making and active travel choice are their *perceptions of safety* in terms of personal and traffic risk, and in this regard, the majority of them perceive a lack of viability of active travel modes under the prevalent safety conditions. The perception of personal and traffic risk affects children differently, younger children aged 7-11 are the most affected and this is reflected by the low levels in their walking, cycling, independent mobility and high level of car use. Older children aged 12-16 enjoy significantly more freedom and independence reflected by high levels of walking and public transport use, and although car use to travel to school reduces drastically, cycling levels are also very low. Parents and carers also show low levels of walking, cycling, public transport use and high levels of car use. Road traffic, stranger danger, fears of assaults, health problems, lack of fitness, injuries, age, lack of confidence and not knowing 'how to' cycle are considered barriers to walking and cycling.

The perceptions towards walking and cycling, although contrasting, are mostly positive. Younger children (7-11) consider cycling 'cool', 'fun', and cheaper and good for health and fitness. Older children (aged 12-16) and parents that already walk and cycle consider such modes as also healthier, easier, more enjoyable and practical than a car and acknowledge car use impacts on the health of people and in the quality of life of families and communities. Further disadvantages are that being outdoors and exposed to the weather whilst walking and cycling alone or with children makes them uncomfortable, unpractical and even 'unhealthy' modes. In addition, cycling is considered 'unattractive and odd', 'slower' and more difficult to maintain than other modes. Female parents particularly perceive that 'cycling is better for men'.

The attitudes towards car use are highly positive: a car is seen by some of them as 'integral to most cultures' and considered by others as 'cool', 'an aspirational purchase' and a 'sign of achievement'. A car is considered an advantage for families as it has become part of their transport routine and children and parents perceive that car use is

more convenient and practical for them, as facilitates their daily life. A car also helps to cope with the busy schedules during the working week and provides the flexibility to organise the transport routines of each one of the members of their families, regardless of distances. A car is also seen as extremely important to go to *work* after the school run and also for expanding opportunities to get jobs that require driving or covering longer distances or to go shopping or to leisure places. Transport by car is also considered 'safer' and 'faster' than walking and cycling and more reliable, safer, faster, cheaper and comfortable than public transport. However, it is perceived that driving a car in some cases is not enjoyable, due to traffic, parking issues, and high maintenance costs.

The perceptions about public transport by older children aged 12-16 that have to go longer distances to secondary schools and by parents that have to travel further away to work or other places that do not have access to a car are contrasting. Having easy access to a mix of bus, tram, train or taxi services is a positive feature that enables them to cope without a car. The convenience, low fares, and discounts on bus service, the easy access, reliability and friendliness of a taxi service and the access for cycles on trains are seen as positive features of public transport. However, not having access to suitable public transport is a barrier in reducing car use to travel to further destinations after the school run. The most common issues include the lack of routes and connections, services being unreliable and infrequent, slow, expensive, uncomfortable, and stressful. Added to the lack of bike accessibility, this makes public transport a poor alternative to car use.

At the community (neighbourhood) level, the most significant factors are of two types: social and physical environmental. The perceptions of the lack of support at work, school and other destinations is reflected, for example, in the tight or *inflexible work schedules* and the *insufficient school care* sessions (breakfast and after school clubs) that do not allow parents or their children to opt for active travel modes, that take in general more time. The lack of facilities for cycling, such as secure parking, changing rooms and shower facilities at work places, at school and other destinations such as shops, hospitals etc. also add up to the perception of an environment that is not supportive to the active travel activity.

Children and parents that already walk or cycle perceive that in order to work, these modes require *enabling strategies* in place which include, children sticking to familiar or agreed routes that are considered safe in terms of traffic, the company or presence of others on the route to school, 'planning' ahead and splitting big tasks into small ones, making transport provisions, 'socialising' and keeping good contact and communication with neighbours in their communities, friends and family. These findings show that modes

such as walking and cycling that are also considered 'easier' modes than the car, require in practice a more complex level of decision-making that imply a degree of adaptation, extra effort, commitment and planning.

At wider (local and national) level factors

Policy is the major factor in determining funding of social campaigns for crime prevention and also physical infrastructure supporting active travel at community (neighbourhood) and school levels and in the UK, policy agendas in relation to transport to school are based on strategies to increase walking and cycling that are majorly campaign based. However, parents in particular, consider that cycling and walking campaigns at national and local level, are not effective because they have the wrong approach as they do not target the main issue: *people won't cycle in traffic.* In addition, strong *'reluctance to change'* attitudes emerged in this research that illustrate children and parents' substantial car dependency, their fears about not being able to use a car, their pessimistic thoughts about transport issues in the future, and their reluctance to arguments centered on the environmental benefits of car reduction.

A 'car culture' (Brunton et al., 2006) and an 'anti-cycling culture' (Aldred, 2011) culture prevails in the UK, and this is reflected in today's prevalent social and physical environmental conditions, which has made children and parents perceive walking and cycling as almost 'unnatural' modes of travel. However, the findings of this research show that there is a substantial potential of a shift towards active travel in the group of children and parents from families in urban contexts, because although parents and children perceive that walking and cycling are not viable modes under the prevalent safety conditions, and despite their strong perceptions about the lack of support for active travel and the positive attitudes towards cars and its advantages, a shift into active travel might still be possible because parents and children show strong positive attitudes towards active travel, its benefits and advantages.

However, a shift in government policy approach, at a national level with effects at local levels is needed, that considers active travel modes as a viable means of public transport and in advocating its collectivity, puts people using active travel modes such as walking or cycling, first or in equal position to other people using other transport modes on the road, in the best possible conditions, so it becomes again part of part of the UK culture. In order to build and also maintain such an 'active travel culture', as expressed by children and parents through this research, the prevalent traffic conditions need to be challenged, the current attitudes changed and a supportive environment for active travel needs to be

created; and this, from their point of view, could be achieved through five different but simultaneous approaches in policy:

- *"Creating an easy, pleasant, safe and barrier free physical environment for active travel"*

Children and parents engaged in the PhD research expressed that policy should have a strong focus in creating an easier, pleasant, safe and barrier free physical environment for active travel. The aspects to be addressed in order to achieve such an environment include elements of urban form such as infrastructure, urban design, distance, land use and provision of facilities. Furthermore, such an environment appears different for cycling and walking, because the availability of infrastructure seems very important for the first one, whilst urban design seems to matter more for the second. Based on the findings of this research, it can be argued that intervention of the physical environment has a strong influence in encouraging active travel to school in the families of urban areas engaged in this research. However, such suggested interventions are not limited to certain aspects around or on the route to school, but comprises wider aspects of spatial planning, sustainability and urban design at wider (local and national) and community levels. Therefore, it is necessary to highlight that although the physical environment plays a very important role in encouraging active travel to school in the future, it is not the sole aspect that needs to be addressed, as, according to children and parents, there are also certain aspects of the social environment that need to be dealt with.

- *"Creating a social and economical environment for active travel"*

In terms of the social environment, children and parents consider the importance of policy focusing on the 'school approach' to active travel, the creation of 'active travel networks' and in the 'approach at work'. With regards to *school* policy, children and parents consider that the approach taken by this has a key role to play by providing childcare and training and by keeping the motivation and encouragement for children and parents to active travel in the future. Parents and children suggest the creation of *'networks'* supporting active travel activity at community levels in order to motivate groups of people to get involved in outdoor activities and events through the use of communication technologies. This reflects that parents and children seem to value the opportunity for social interaction that active travel provides and together with the use of massive communication networks such as 'Facebook' or 'Twitter' can be of advantage into developing effective strategies that make it easier for people to engage in active travel. With regards to *work,* children and parents consider that policy should focus on supporting people working more locally in their

communities; supporting more ‘flexible’ practices at work places; and also in providing spaces with teleconference facilities closer to home or in local schools at no more than ‘30’ minutes’ distance. Current policy already encourages travel planning and teleworking; however, such practices are limited and need to be widespread throughout the country. Therefore, further policy is needed that addresses family-friendly practices that benefit parents in full time work and single parents opting for active travel modes.

- *“Providing a supportive public transport system”*

Children and parents suggest that the government should invest in increasing and creating a more ‘attractive’ and ‘improved’ public transport system so it becomes more appealing compared to driving. They also consider that a combination of public transport (bus, tram, train, etc.) will still be needed to travel long distances or access distant areas difficult to reach by walking or cycling only, however, although current policy addresses public transport to school provision for children and young people in certain conditions, do not benefit the family as a whole. Therefore, policy should be aimed at increasing the performance of public transport and also should be addressing the development of more family-friendly public transport policies that enable children and parents to use a more attractive, low-cost, comfortable, faster and efficient service rather than traveling by car.

- *“Convincing people of the benefits of active travel through promotion, incentives, education and innovations”*

Children and parents consider that in order to shift attitudes towards walking and cycling, policy should focus on *‘convincing’* people of the benefits of active travel by ‘incentivising’ the choice for active travel, by ‘promoting’ the benefits and image of walking and cycling, by ‘educating’ about active travel and also by ‘innovating’ the active travel equipment. Currently, the promotion of active travel modes in the UK policy agendas have relied mostly on the promotion of walking and cycling strategies at school level. These kind of intensive supported behavioural interventions reports substantial increases over the short-term, however, its long-term effectiveness have been strongly linked to the family’s support. In addition, the promotion of walking and cycling alone may not be sufficient. On the other hand, at national level, promotion of active travel has relied on public heath campaigns that have also been found to have a short-term positive impact but its sustainability is debatable. In this context, the aspects suggested by children and parents as a focus of policy in order to shift attitudes towards walking and cycling are: incentives, promotion, education, and innovation are seen as creative approaches that could be more effective.

- *“Imposing” restrictions to the use of private vehicles*

Children and parents propose to create policy to restrict the use of cars for private purposes in order to shift the attitudes from thinking ‘car first’ to a ‘pedestrian and cycling first’. The views to impose restrictions to private vehicle use expressed by children and parents suggest that policy makers should be aiming at reducing the current functional value of private cars and not be aiming at banning people from cars completely, but only at stimulating people to use their cars more selectively and in this way to encourage them to use other travel modes such as walking, cycling and public transport whenever possible and reasonable.

CHAPTER 9: CONCLUSIONS

9.1 Introduction

This chapter provides the main conclusions set against the key research questions, aim and objectives in section 9.2. The contribution to knowledge, theory, methodology and practice of this PhD research are discussed in section 9.3. The challenges and limitations are discussed in section 9.4. Finally, the opportunities for future research are presented in section 9.5.

9.2 Main conclusions

The trip to school, as an everyday mobility event has significant implications not only for children but also for the family, the community and the environment, and over the past twenty years, it has changed its structure reflecting the physical, economic, social and cultural environments that have taken place within British society. Consequently, the trip to school has become a high profile academic, public and policy issue surrounding childhood, transport, mobility and environmental sustainability. However, after many years of nationwide policies, strategies, and schemes, the change in school travel behaviour has been insignificant; as evidence shows that shift towards active travel modes has been negligible, and car use has not declined (DfT, 2008). Worldwide research from disciplines such as transport geography, travel behaviour, urban design, health and physical activity have conducted research on active travel to try to understand the factors that influence the activity itself, both in adults and children in diverse contexts, but despite the extensive research on the journey to school, it was not clear what are the key influences on active travel to school. In addition, there was evidence that children as a user group have been understudied in terms of travel behaviour despite their travel needs having a direct impact on household travel patterns (McMillan, 2005). Research seemed to largely focus upon quantitative measurement of children's mobility experiences to and from school (Pooley et al, 2005a; McDonald, 2008) ignoring the rich complexity and diversity in everyday childhood mobilities experienced and shared by the children themselves. For instance, the need for qualitative approaches to improve the understanding of travel behaviour has been emphasised by Clifton and Handy (2001).

Giving the potential for reducing car use and increasing active travel for short journeys that the trip to school has, there was the need for research to provide informed evidence on the key influences on active travel to school, in order to understand the issues with the lack of

success of initiatives in increasing the levels of walking and cycling and also to learn about specific interventions that are effective into increasing and maintaining such modes. However, the evidence found in this regard was limited, there was a lack of focus on factors that would motivate behaviour change in the context of the trip to school and there was a lack of an inclusive approach on research with children and parents regarding their needs and perspectives about the trip to school. Therefore, the aim of this research was *to explore children's and parents' perspectives of a supportive environment for active travel to school.* Subsequently, the research objectives were:

i. *To determine the current knowledge base on factors that affect children's active travel in the school context*

ii. *To appraise the government policies, strategies and schemes in which the journey to school has been framed in the UK*

iii. *To develop a range of interactive methods within the context of active travel to school which can be used to elicit the views of children and parents*

iv. *To analyse both the current barriers and enablers to active travel to school and the proposed suggestions for change, as identified by children and parents*

v. *To provide a critical synthesis of the requirements of a supportive environment for active travel to school.*

9.2.1 To determine the current knowledge base on factors that affect children's active travel in the school context

A critical review of the most recent literature (McMillan, 2005; Brunton et al., 2006; Panter et al. 2008; Sirard and Slater, 2008; Faulkner et al, 2010; and Pooley et al., 2011) that proposed explicative frameworks or that addressed factors of influences in relation to the journey to school revealed the existence of clear and complex factors which influence children's, and young people's walking and cycling at different levels.

For the purpose of this research, a synthesis of the frameworks was produced in chapter 2 of this thesis (Figure 2.7) as a way to better understand the effects of the diverse factors on active travel to school behaviour (its choice, frequency and quality) at the following levels: Individual; Household and family; Community (neighborhood); and at a Wider (local and national).

According to the synthesis, at the *individual, family and household level*, the psychosocial variables that affect parents and children's decision-making process about active travel to school that can be influenced by the parent or by the child or negotiated, are:

- Characteristics of parents and children, such as the socio-demographics (age/gender/ethnicity) and the physical and cognitive ability; preferences; perceptions of walking and cycling and attitudes towards car use, the environment and climate change; and; culture/beliefs.

- Family status: Marital status (divorce or separation, dual-career and lone parent households) and number of children or someone else to care for; household income; occupational status; parental perceptions of responsibility for the safety of dependents; parental permission; perceptions of easiness and convenience: travel time, time pressures, commitments, schedules, time available during school routines, strategies in place; activity trip chains or multipurpose journeys; resources: household transport options; availability of space and equipment required; costs related; and perceptions of weather.

- Perceptions of safety: refers to perceptions of personal safety (risk and fears of attacks); and to traffic safety (risk and fears of traffic) on the route to school (in the case of children) and further destinations (in the case of parents).

At *Community (neighbourhood) level* the factors are of two types: social and physical environmental:

- Socio Economic Status (SES) and characteristics of the neighbourhood; accessibility, high density, mixed land uses availability of everyday facilities and convenience, street patterns: connectivity of the street network, permeability, distance, topography and aesthetics of the urban environment.

At a *wider national and local level* the main factor is *Policy*, by funding social campaigns and also by funding physical infrastructure supporting active travel at community (neighbourhood and school) levels.

The synthesis of factors that affect active travel to school was subsequently used to guide the methodology and discussion of this research. Furthermore, the synthesis of frameworks built upon previous theory in order to fulfill the need of further investigation on

the key influences on active travel behaviour in the context to school, was one of the reasons why current research in children's active travel to school was limited.

9.2.2 To appraise the government policies, strategies and schemes in which the journey to school has been framed in the UK

In view that according to the synthesis of factors that affect active travel to school, policy decisions have an indirect effect on active travel by funding initiatives and infrastructure projects supporting active travel to school (Sirard and Slater, 2008), the policy context that frames active travel to school in the UK and its approaches was appraised.

A critical review of a series of ongoing government policies, strategies and schemes from education, health, sustainability, transport planning, social inclusion and road safety, in which the journey to school has been framed in the UK, found a range of diverse, exclusionist, ambiguous, conflictive and/or inconsistent approaches in policy, which might explain the reason why after many years of nationwide strategies, the shift towards active travel modes is still negligible and car use does not decline (DfT, 2008). For example, the traditional approach to children in urban transport and environmental planning has been to focus on behaviour control and modification which has resulted in a set of policies that serves the interest of adults, marginalises the interests of children (Davis et al., 1996) and consequently leads to social exclusion. The approaches taken by road safety strategies are an example of it. Women have also suffered from social exclusion, as transport planners have ignored their needs (Tolley et al., 1995).

A shift of approaches that can be attributed to the impact of the United Nations Convention of the Rights of the Child (CRC) shows that planners and policy-makers are increasingly becoming sensitised about the impact of their urban design decisions on children lives. This has resulted in the involvement of children in the planning, design, monitoring and management of the physical environment. Although child-centred approaches have been encouraged by national strategies, there have been issues with its implementation at local levels due to difficult guidelines, practical issues, lack of compliance etc. Other types of approach have focused on the promotion of active travel modes to encourage behaviour change. However, its impacts and effectiveness are mostly just short-term and funding allocated for campaigns has also been inadequate. In addition, some common policies that affect population targets derive from assumptions that need to be better informed, in order to set realistic or reasonable targets in practice.

With regard to urban form, the common approach has been to assume that by improving or changing aspects of transport and urban form of communities, people would be more inclined to walk and cycle. However, limited research exists to support the hypothesis that intervening urban form of communities will increase active travel to school (McMillan, 2005). Approaches may seem ambiguous: in order to comply with the duty to support choice and flexibility of educational provision, policies have increased the trip distances to school, and reduced the chances for travel to school. In addition, the impact of other more accessible and inclusive approaches such as the 'spatial concentration of facilities' that provides services at school in order to reduce travel distances is still unknown.

The evaluation of effectiveness of physical interventions is also an issue, because it is generally based on its success in increasing the amount of trips to school, but not in improving its quality experience. In this sense, national policy seems too general and the lack of specific guidance has pushed local authorities to formulate their own ideas. This has resulted in technical or professional assumptions about what is best for users and in the creation of a myriad of either practical locally driven strategies or 'one-size-fits-all' type of solutions that are assumed to be of widespread implementation. Therefore, it can be affirmed that the implementation of national policy by local authorities for encouraging active travel to school does not reflect children's needs closely enough.

9.2.3 To develop a range of interactive methods within the context of active travel to school which can be used to elicit the views of children and parents

According to McMillan (2005), children are a user group understudied in terms of travel behaviour despite their travel needs having a direct impact on household travel patterns. As research seems to largely focus upon quantitative measurement of children's mobility experiences to and from school (Pooley et al, 2005a; McDonald, 2008) it ignores the rich complexity and diversity in everyday childhood mobility. For instance, the need for qualitative approaches to improve the understanding of travel behaviour has been emphasised by Clifton and Handy (2001). Furthermore, according to Lewis et al., (2000) researchers need to be aware not only of children's diversity but of their own responsibility in identifying methodologies which enable children to express their views. Therefore, it is required for researchers to acknowledge the clear differences between an infant and a young person and consider multiple research strategies or 'participatory' methods to engage with them (Morrow, 2010).

In line with this, this research relied on qualitative methods in order to understand the complexities and constraints of the choices that children and parents make about their

daily travel. Focus groups, activity groups and semi-structured interviews were the methods to collect the relevant data from parents and children. Furthermore, a range of participative and play-based interactive methods, which including drawing and participative mapping, were designed in order to elicit information from children such as their current travel mode and the barriers and enablers to active travel to school. Some of them were play-based, used as initial 'warm-ups' or 'in between task' exercises to keep children's motivation going. Others used props to propitiate discussion between children and/or to clarify information. In addition, the range of methods was designed to be flexible depending on the age range, number of children in the group and place and time available for the activity (the range of participative tools has been discussed in detail in Section 4.6 of this thesis). Using such methods within the 'activity groups' where a number of children can complete a task simultaneously, allowed obtaining information more quickly and for a greater number of children than by individual interviews (Boyden and Ennew, 1997). The use of participative mapping and drawings with children was very positive because being a visual and task-based method stimulated animated discussions about aspects that might have not so easily emerged in the semi-structure interviews. On the other hand, the use of focus groups and semi-structured interviews with parents were very helpful to understand more about the factors that influence decision-making in the household.

A sample of 130 participants consisting of 51 children aged 7-11, 45 children aged 12-16 and 34 parents aged 20-60 was obtained through 12 activity groups, 2 focus groups and 42 one-to-one semi-structured interviews. As the volume of material derived from the sessions was substantial, the use of specialist computer software (NVivo9.2) was very useful to manage the data. The merits of this, combined with the use of participatory methods are reflected through the presentation of the results, which appears rich and detailed and provides in depth insights into children and parents' perspectives of active travel to school.

9.2.4 To analyse both the current barriers and enablers to active travel to school and the proposed suggestions for change, as identified by children and parents

The 'barriers' and 'enablers' to school and the proposed 'suggestions for change', as identified by children and parents were analysed and the results were presented in chapters 5, 6 and 7. The results showed that there are many factors that appear as both 'barriers' and 'enablers' to active travel to school, and some also emerge as 'suggestions for change'. In addition, an analysis of the frequency of references revealed that the level of importance of the thematic ideas emerged as barriers, enablers or suggestions for

change varied between parents and children according to their age, gender, or travel mode.

For example, according to both children and parents participating in this research, at individual and family level, the *'perceptions of risk'* are the most important *barriers* to active travel to school equally in the groups of children and parents regardless of age, gender or travel mode, although in proportion it seems more important for the group of parents and for the younger female children aged 7-11. On the other hand, the *'negative perceptions of cycling'* are the second most important barriers for the group of children, although in proportion it seems more important for the group of older children aged 12-16. In similar proportions, the '*issues of health and fitness'* are also significant barriers to active travel to school for both groups of children and parents. Further perceived barriers are different for groups of children and parents and include '*issues with public transport'; and 'bad weather".* To a lesser extent*, 'time and schedule issues'; 'work and other destinations'; 'long distance and lack of direct routes', 'costs and availability issues', 'lack of storage and facilities' and 'positive perceptions of car use'* are also considered barriers to active travel to school.

With regard to the perceived *enablers,* '*perceptions of safety and pleasure'* are the most important enablers to active travel to school to parents and the *'positive perceptions of cycling' to children.* In addition, the *'health and fitness* benefits'; the '*social and developmental benefits'; and 'living closer to school, work and other destinations'* are also considered important enablers for both groups of parents and children. To a lesser extent, other enablers to active travel to school were: *'good weather'; 'having good public transport'; 'the environmental benefits of active travel'; 'the negative perceptions of car use'; 'cost and access'; 'appropriate equipment; and 'planning ahead'.*

As per the *proposed suggestions for change*, it was found that in first place, the most important aspect that would encourage children and parents into active travel to school is *'changes to the physical environment'*, and within this, 'facilities for cycling', 'facilities for walking' and a 'green and pleasant environment' are paramount. In second place, it was found that there exists a very strong *'reluctance to change'* attitude between the participants, reflected in perceptions that show a strong car dependency particularly in the case of young female children aged 7 to 11. In third place, it was found that 'incentives' from *'changes to the approach to active travel'* and 'school approach' from *'changes to the social environment'* are aspects considered equally important for children and parents. However, the first seems more important to children aged 12-16, to male parents and to the group of cyclists, whilst the second seems more important to children aged 7-11,

female parents and car users. To a lesser extent, the 'improvements', 'low cost' and 'efficiency' from *'changes to public transport'* and 'banning cars from circulating' and 'parking enforcement' from *'changes to the approach to private vehicle use'* are also important aspects, although the first seems more important for the group of parents and older children aged 12-16 and the second seems more important for the group of walkers and cyclists.

The findings on 'barriers' and 'enablers' showed that although parents and children perceive that walking and cycling are not viable modes under the prevalent safety conditions and despite their strong perceptions about the lack of support for active travel and the positive attitudes towards car and its advantages, a shift into active travel might still possible because parents and children show strong positive attitudes towards active travel, its benefits and advantages. Furthermore, based on the findings on 'what would encourage' children and parents into active travel regularly to school, it can be said that despite the existence of strong 'reluctance to change' attitudes that reflect car dependency and pessimistic perspectives about the future of active travel, still the attitudes open to changes and improvements to the physical, and social environment; to public transport and to the approach to active travel and to private vehicle use are ways in which children and parents would be encouraged into active travel to school in the future.

9.2.5 To provide a critical synthesis of the requirements of a supportive environment for active travel to school

Giving the potential for reducing car use and increasing active travel for short journeys that the trip to school has, there was the need for research to provide informed evidence on the key influences on active travel to school, in order to learn about specific interventions that are effective into increasing and maintaining walking and cycling. Therefore, the aim of this research was to explore children's and parents' perspectives of a supportive environment for active travel to school. Based on Dunn et al., (2001 p.3), a supportive environment for walking and cycling was defined as,

> *"One that provides all the factors that positively influence, enables and encourages people's walking and cycling"*

Based on the results of this research, according to children and parents, a supportive environment for active travel could be achieved through five different but simultaneous approaches in policy:

- *"Creating an easy, pleasant, safe and barrier free physical environment for active travel"*

Based on the findings of this research, it can be argued that intervention of the physical environment has the strongest influence in encouraging active travel to school in the families of urban areas engaged in this research. However, such suggested interventions are not limited to certain aspects around or on the route to school, but comprises wider aspects of spatial planning, sustainability and urban design at wider (local and national) and community levels. Despite the physical environment playing a very important role in encouraging active travel to school in the future, it is not the sole aspect that needs to be addressed by policy, as, according to children and parents, there are also certain aspects of the social environment that need to be addressed.

- *"Creating a social and economical environment for active travel"*

In terms of the social environment, children and parents consider the importance of policy focusing on the 'school approach' to active travel, the creation of 'active travel networks' and in the 'approach at work'. Current policy already encourages travel planning and teleworking; however, such practices are limited and yet need to be widespread throughout the country. Therefore, further policy is needed that addresses family-friendly practices that benefit parents in full time work and single parents opting for active travel modes.

- *"Providing a supportive public transport system"*

Children and parents suggest that the government should invest in increasing and creating a more 'attractive' and 'improved' public transport system so it becomes more appealing compared to driving. Therefore, policy should be aimed at increasing the performance of public transport and also should be addressing the development of more family-friendly public transport policies that enable children and parents to use a more attractive, low-cost, comfortable, faster and efficient service rather than traveling by car.

- *"Convincing people of the benefits of active travel through promotion, incentives, education and innovations"*

Children and parents consider that in order to shift attitudes towards walking and cycling, policy should focus on *'convincing'* people of the benefits of active travel by 'incentivising' the choice for active travel, by 'promoting' the benefits and image of walking and cycling, by 'educating' into active travel and also by 'innovating' the active travel equipment. These are creative approaches that could be more effective than current behavioral interventions that are short-term, inconsistent and do not reflect children's needs closely enough.

- *"Imposing restrictions on the use of private vehicles"*

Children and parents propose to create policy to restrict the use of cars for private purposes and in order to shift the attitudes from thinking 'car first' to a 'pedestrian and cycling first' attitude. This suggests that policy makers should be aiming at stimulating people to use their car more selectively and in this way to encourage them to use other travel modes such as walking, cycling and public transport.

9.3 Contributions

This research has a strong design addressing both analytical and empirical issues. It contributes to academic needs in terms of theory and methodology. In practice, it contributes to current national and international policy need for information on children and parents and their everyday life in terms of mobility.

9.3.1 Contribution to knowledge

This PhD research contributes to the body of knowledge on Active Travel to School especially from the perspective of the more dependent and vulnerable users of the transport and built environment realms, by following up previous theory (Brunton et al., 2006) that recommends recognising children and parents as entirely different users and populations with diverse views, preferences and perspectives and by bringing their voices into research on issues that affect them in their every day lives. The fact that the research included them both, (children and parents), provided elements of contrast, a wider and inclusive input, and contributed to a better understanding from the point of view of children and parents.

Regarding children, the age range of the children (from 7 to 16 years of age) provided a more in-depth and holistic view of how a range of children feel about their journeys to school now and their perspectives for the future. This overcomes the issues with past

research (from the planning, transportation, urban design, public health and physical activity areas) that has seemed to focus on smaller age ranges.

9.3.2 Contribution to theory

In addition, it builds upon previous theory that considers that interventions aiming to increase active travel to school require the consideration of the arrays of complex environmental factors and variables at many levels by synthesising them into a framework (McMillan, 2005; Panter et al., 2008; Sirard and Slater, 2008; Faulkner 2010; and Pooley 2011) that has been adopted as methodological guidance for this research. This has contributed to achieve a holistic view overcoming the issues of past research on Active Travel to School (from the diverse areas mentioned previously) that has a relatively narrow focus of variables typically studied within given disciplines.

9.3.3 Contribution to Methodology

The methodological contribution is notable because this research explored more inclusive approaches in engaging with parents and children to elicit their perspectives of a supportive environment for active travel to school. Children and parents were recognised as being central to this research process, knowledgeable about their own experiences and a participatory methodology was used to allow for a number of methods to be employed in collecting the relevant data to understand the complexity of their perspectives. As a result, this had added to the richness and texture of the data.

The research methods were especially developed around active travel to school and adapted to the characteristics of the participants. Given that children as well as adults were the centre of this research process, the wide age range demonstrated the flexibility of the methodological approach as well as the ability of young children to engage at a greater level in meaningful participatory research.

In addition, regarding children in terms of the freedom to express themselves, as the research was conducted not only at school but also at alternative activities provided outside it, a power balance was achieved. So if the school is somehow considered a space where the children are contained within, and this could influence their freedom to express themselves, and whilst options were available for them to opt out of this research, the options provided with the alternative activities out of school were more favourable to them.

9.3.4 Contribution to Practice

In terms of practice, the literature review found that current initiatives to increase the amount of walking and cycling to school are inconsistent, ineffective, conflictive and short-termed. The research contribution has been to elicit children and parents' long-term perspectives in order to achieve a consistent strategy to increase and maintain (in terms of the quantity and also the quality of the experience) the levels of active travel to school in the future.

The level of detail obtained from this research about the way the physical environment should be from the point of view of children and parents addresses the issue of lack of guidelines for improving the quality of the walking and cycling environment that local authorities currently face, and contributes to narrow the gap between policy and practice discussed in section 3.4 of this PhD thesis.

The findings of this research, on the shape and nature of the relationship between children, parents, and supportive environments for active travel can potentially impact outcomes and policies related to health, transportation and planning. As the end result to be achieved from this research was to provide a critical synthesis of the requirements of a supportive environment for active travel to school, the recommendations derived from it will benefit policies looking to increase and maintain the quantity and quality of the active travel experience. In addition, the findings have particular relevance to current UK and European agendas that are concerned with public investment in new green infrastructures and the need to enable participation by currently excluded groups, especially children and women.

9.4 Challenges and limitations

This research was not without its challenges. From the methodological point of view, working with children and conducting qualitative research at schools and homes was challenging. First, designing and building a range of participative and play-based interactive methods was laborious. Second, approaching schools, negotiating access and obtaining consent from parents required following a process that was lengthier and time-consuming than anticipated. Thirdly, implementing the logistics of carrying all the tools required to conduct the activity group sessions was difficult. However, the level of enthusiasm, creativity and commitment with which children and parents participated in the sessions was impressive.

On the other hand, the time and labour input into managing the volume of data resulting from the sessions was also time consuming, especially the stage of transcribing the records. In order to manage and analyse the data, computer-assisted qualitative analysis software programme NVivo 9.2 was used. This contributed positively to increase the validity and reliability of this research as using software in the data analysis process adds rigour to qualitative research (Richards & Richards, 1991). In this regard, this PhD research followed some of the strategies that according to Maxwell (2005) increase credibility of the conclusions, e.g., 'triangulation' and the use of 'rich' data. However, with more time, it would also have proved beneficial to show the children the output of this research once it was compiled together, for them to verify and challenge.

In terms of generalizability, that has been defined as "the degree to which the findings can be generalized from the study sample to the entire population" (Polit and Hungler, 1991, p. 645). For the purpose of this research it can be argued that regardless the size of the sample (130 participants), it was not intended to make statistical generalisation to a larger population, but rather as Yin (1994) explained, it was intended to make analytical generalization to expand theory, as it is believed that the results of this study can provide ground for a deeper understanding that can inform theory and practice and also for possible replication to other similar or larger studies.

9.5 Opportunities for future research

The opportunities for further research are twofold, both in terms of building on the methodology, and building on the findings, and could encompass one or more of the following:

1. To utilise the interactive and participative research activities which were specifically developed for children within the context of walking and cycling, and to adapt these to consider research questions in relation to:

   - What constitutes a supportive environment for active travel to school within the context of public transport and how does this interact with other modes of transport?

   - What constitutes a supportive environment for active travel to school for more innovative forms of transport such as mini scooters, rollerblades, go-carts etc?

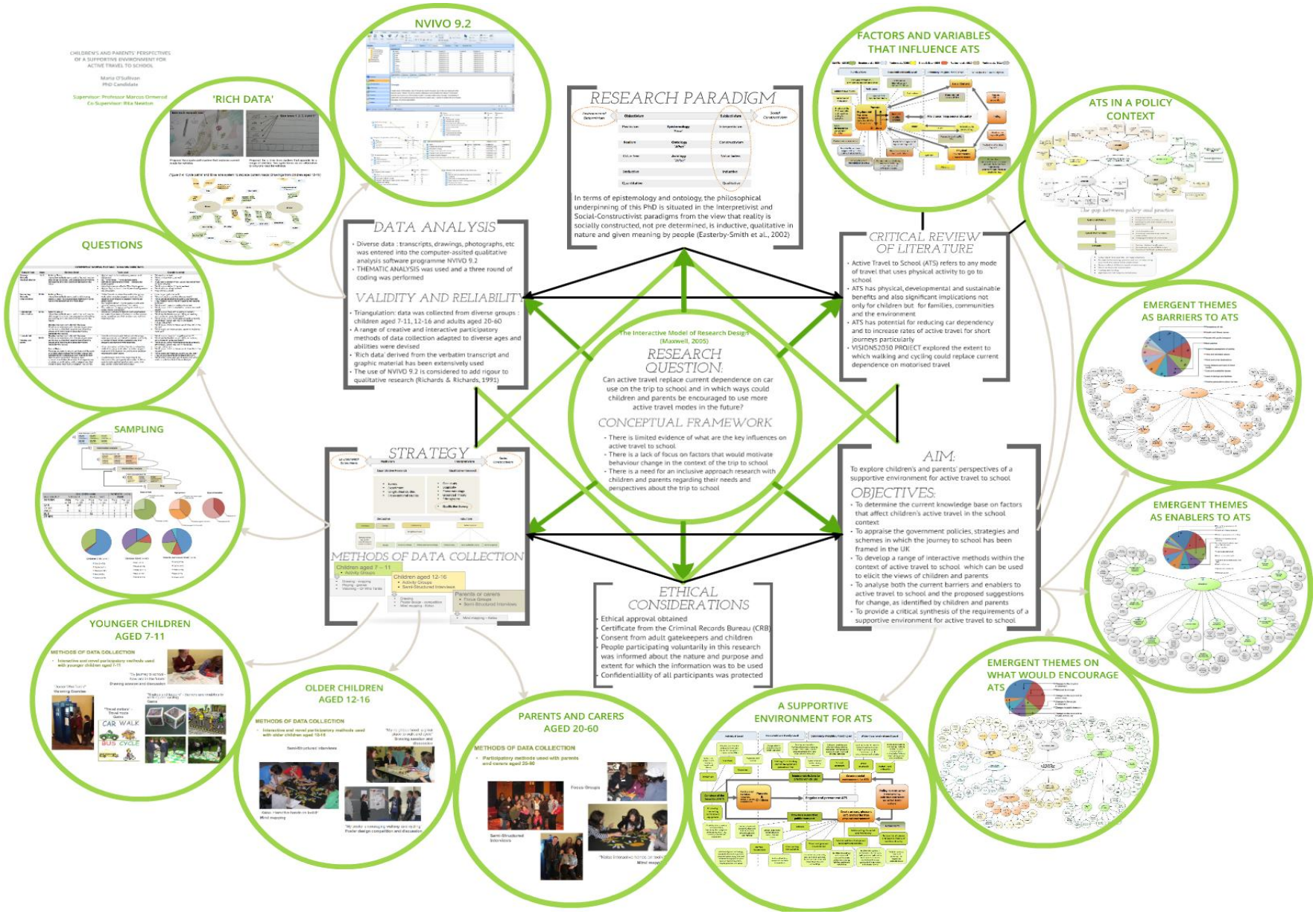
2. To take the critical synthesis of the requirements of a supportive environment for active travel to school (as developed for this PhD within the context of primary school education), and to further test this within the context of secondary school education, particularly at the transition point for a child between primary education where there is a loss of independent mobility, and secondary education where there is an expectation of independent mobility

3. To undertake an intervention study, either as a naturally occurring experiment or a planned experiment to assess the findings from the critical synthesis of the requirements of a supportive environment for active travel to school, and to assess this within the context of the real world – so for example, if we enacted research finding a and b, what effect will this have?

4. To undertake detail research on the family influence in the context of active travel, based on treatment of family as a unit of analysis.

APPENDICES

Appendix A: The Research Journey as per Maxwell's Interactive Model (2005)



Appendix B: Overview of sample, methods, tools and questions

OVERVIEW OF SAMPLE, METHODS, TOOLS AND QUESTIONS

Sample from	Ages	Methods Used	Tools used	Questions asked
Primary Schools Younger children	7-11	**Activity Group** Interactive methods were used to find out how the children get to school, their perceptions of walking and cycling, and their visions of transport in the future	▪ My journey to school – drawing session and discussion ▪ My Travel Mode - Travel stations game ▪ Barriers to walking and cycling – Snakes and ladders game. ▪ Visioning exercise – Doctor Who Tardis game. ▪ My journey to school in the future– drawing session and discussion	▪ Where do you live? ▪ Which of you walk to school? ▪ Why? ▪ If you get to school by car, would you like to walk or cycle instead? ▪ What is your vision of the future like? ▪ What will your street be like? ▪ How will you travel?
Secondary Schools Older children	12-16	**Activity Group** Interactive methods were used to elicit young people's vision for a sustainable community in the future with transport as the main driver.	▪ 'Ketso' hands on interactive method for group work, which enables people to work and think together to contribute in decision-making and action plans. ▪ 'My neighbourhood: a great place to walk and cycle' – drawing session and discussion ▪ 'My poster encouraging cycling and walking' – poster design competition	▪ How do you get to school? ▪ Why is it good to use the bike and walk? ▪ What are the problems in cycling and walking? ▪ How might a future with only cycling and walking look like? ▪ What would make you walk/cycle more? ▪ What do you think is needed to make others walk more?
Households Older children	12-16	**Activity Group** Interactive methods were used to find out how the children get to school, their perceptions of walking and cycling, and their visions of transport in the future. **One-to-one Semi-structured Interview** One-to-one interviews with diverse people were carried out to elicit their experiences of getting around and their thoughts about how future transport may be like.	▪ Individual / Groups of children were approached and asked to answer voluntarily a number of open ended questions and their answers and opinions were recorded.	▪ What is your main form of going to school? ▪ What are the barriers to you taking on walking and cycling on a regular basis? ▪ What do you think [walking] [cycling] [bus travel], [train travel] would look like in the future? ▪ Do you use a car? ▪ What do you think car travel would look like in the future? ▪ What would convince you/your parents to give up your car?
Households Parents and carers	20-60	**One-to-one Semi-structured Interview** One-to-one interviews with diverse people were carried out to elicit their experiences of getting around and their thoughts about how future transport may be like. **Focus Group** Focus group used to record opinions and thoughts of diverse aged women with children about their parental/carer's perceptions with regards to their children and dependant relative's travel experience and also about what their experiences of getting around, using public transport and their thoughts about how future transport may be like.	▪ Parents and carers with children of school age were approached and asked to answer voluntarily a number of open-ended questions and their answers and opinions were recorded. ▪ Group discussion – 'Ketso' hands on interactive method for group work, which enables people to work and think together to contribute in decision-making and action plans. ▪ Questionnaire: prior to the beginning of the discussion, the participants were asked to fill out questionnaire gathering information about their age, gender, socio-economic status	▪ What is your main form of getting around? ▪ What are the barriers to you taking on walking and cycling on a regular basis? ▪ What do you think [walking] [cycling] [bus travel], [train travel] would look like in the future? ▪ Do you use a car? ▪ What do you think car travel would look like in the future? ▪ What would convince you to give up your car? ▪ How do your children go to school and why? ▪ What would encourage you to allow your kids to walk or cycle to school independently?

Appendix C: The journey through Nvivo

Name: A Supportive Environment for ATS
Created On: 15/05/13
Created BY:MO
Read Only: No

About the project

The research problem may be stated as:

> *Can active travel replace current dependence on car use on the trip to school and in which ways could children and parents be encouraged to use more active travel modes in the future?*

This research aims to:

- To elicit children's and parents' currents views on Active Travel to School in terms of benefits, drawbacks, barriers and enablers
- To determine what are the factors that affect parents' and children's Active Travel to School, how and why
- To establish how these factors need to change or improve in order to encourage parents and children into actively travelling to school

About the data

A purposive sample was used as the initial start for the activity groups. Thereafter a 'snowball' sample was utilised. A purposive sample of 51 children aged 7-11 attending primary school was obtained initially through activity groups at schools and households. The methods used were drawing, mapping, playing games, and visioning with dr. Who Tardis. An intermediate analysis was performed to develop partial categories and a strategy to find uncovered categories. A sample of 34 parents and other of 45 children aged 12-16 were derived from the original sample by snowballing sample. Further methods of data collection used included focus groups and one-to-one semi-structured interviews (Figure 1).

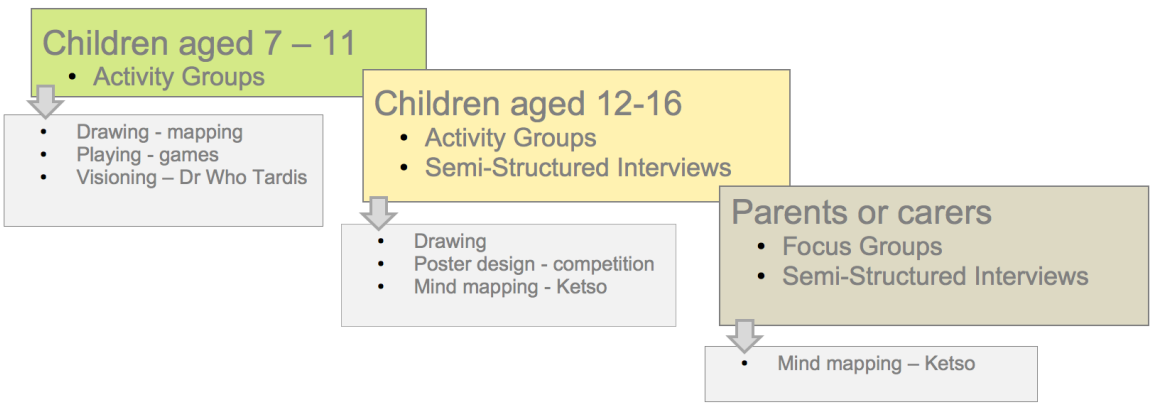


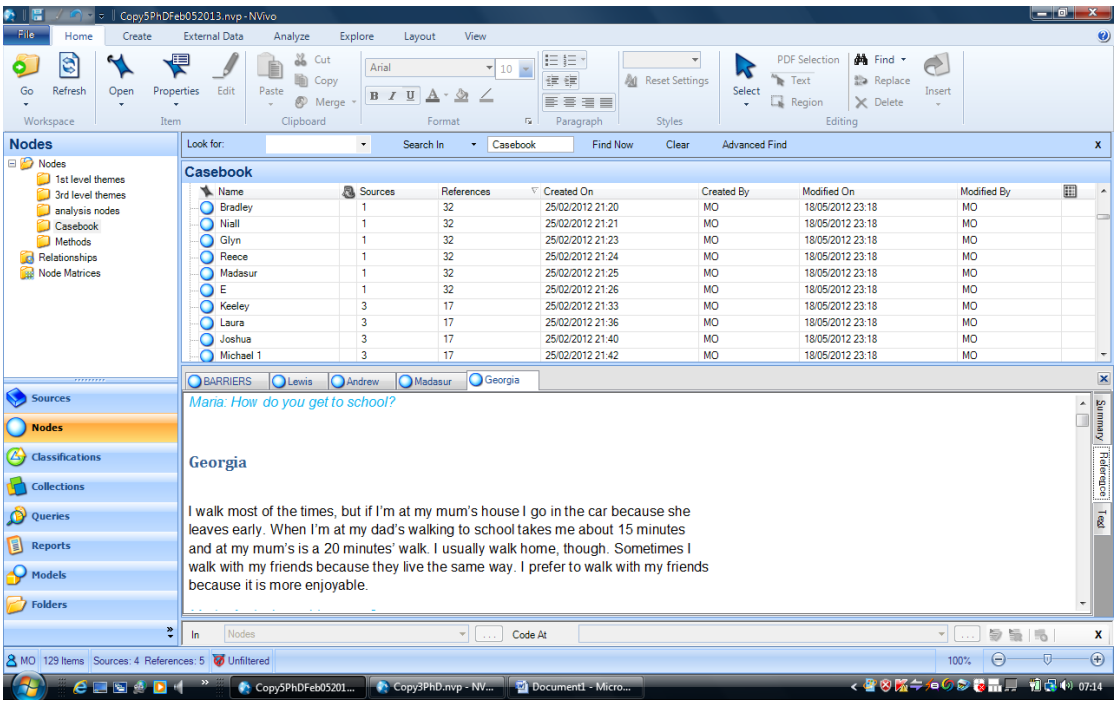
Figure 1: Overview of sample and methods of data collection

All the sessions carried out: activity groups, focus groups and semi-structured interviews were digital-recorded using standard Dictaphones. The records were fully transcribed and together with scanned drawings and maps that were obtained from the sessions were subsequently imported as data to NVivo.

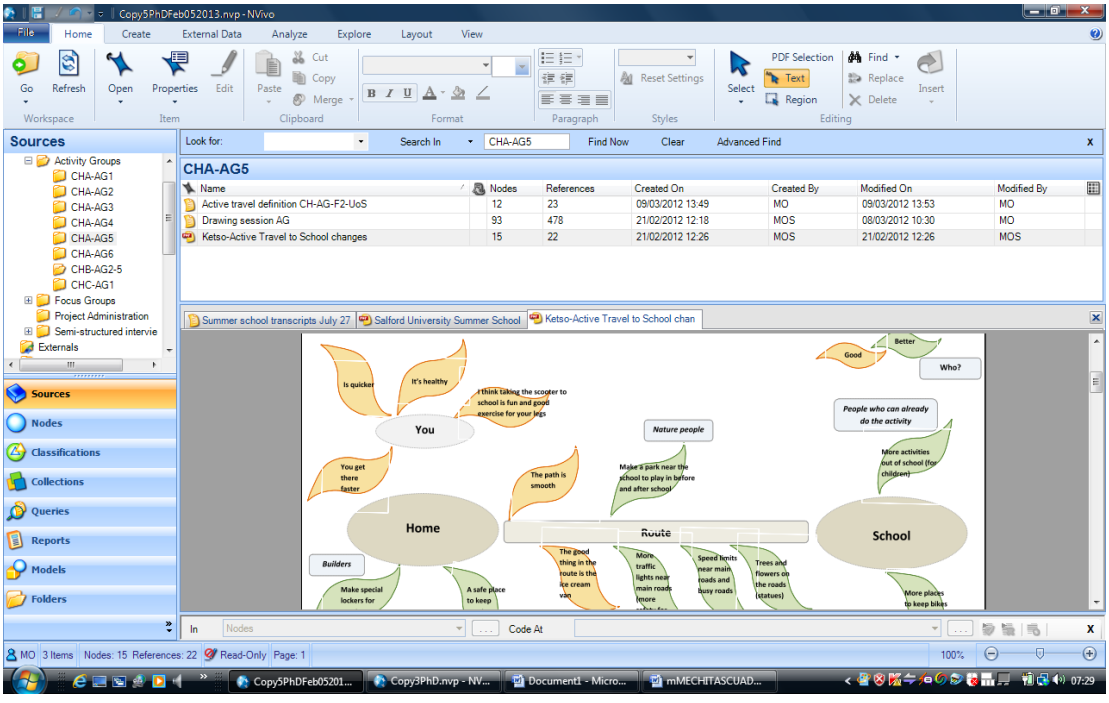
Coding Stage 1

The data was descriptively coded to create the cases and attributes by

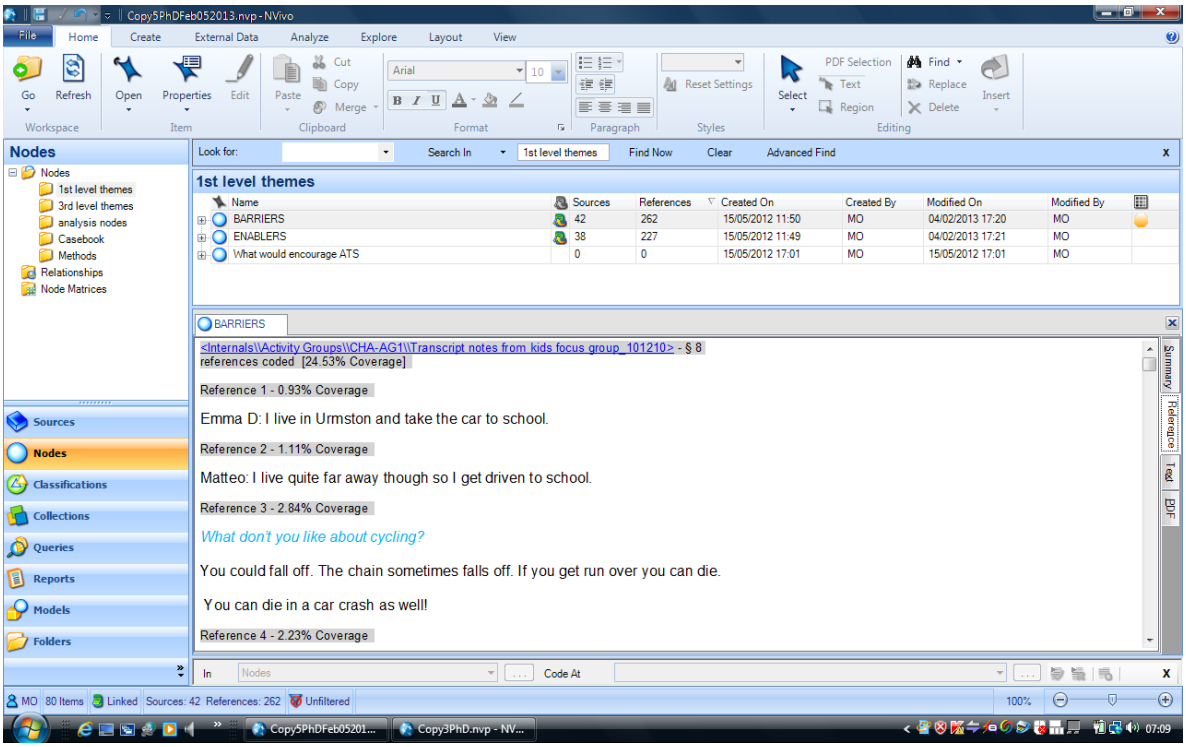
1. Importing the case book and the transcripts:



2. Importing the graphic material:



3. Open coding of the transcripts and graphic material to three nodes: ‘barriers’, ‘enablers’ and ‘changes’ (what would encourage ATS):



Coding Stage 2

Thematic analysis was used to analyse the content and context of the transcripts and graphic material. As the data collection progressed, themes emerged under the nodes, for example, under the node ‘barrier’, as can be seen below, some themes such ‘public transport’, ‘perceptions of risk’, ‘other commitments’, ‘negative perceptions’ ‘bad weather’, etc.:

Barriers		41	248	15/05/2012 11:50	MO

Type	Name	Memo Link	Sources	References	Created On
Node Level 1	to classify		25	45	15/05/2012 11:50
	Public transport		9	46	17/05/2012 10:24
	Perceptions of Risk		27	130	15/05/2012 11:50

Type	Name	Memo Link	Sources	References
Node Level 2				

issues of dependence-permission		14	33

Type	Name	Memo Link	Sources	References	Created On
	Other commitments		15	29	15/05/2012 11:50
	Negative perceptions		1	2	15/05/2012 16:53
	Long distance and lack of direct routes		12	22	15/05/2012 11:50
	Lack of time		18	35	15/05/2012 11:50
	Lack of storage		1	2	15/05/2012 16:52
	Health and fitness		22	59	15/05/2012 11:50
	Facilities		19	57	15/05/2012 11:50
	Cost		3	7	15/05/2012 11:50
	Bad Weather		17	44	15/05/2012 11:50

At this stage, a report of the coding to the ‘bad weather’ theme under the ‘barriers’ node would look like this:

Barriers- bad Weather

<Internals\\Activity Groups\\AG-BG-browniegrp\\notes of group activities> - § 3 references coded [4.41% Coverage]

Reference 1 - 0.28% Coverage

Weather – 2

Reference 2 - 1.81% Coverage

Olivia – The weather makes me worried as I don’t want to get wet before school.

Reference 3 - 2.32% Coverage

Stacey – I wouldn’t want to do that because it would always rain and I might get tired before school.

<Internals\\Activity Groups\\AG-BG-browniegrp\\Summary> - § 2 references coded [0.97% Coverage]

Reference 1 - 0.10% Coverage

- Weather

Reference 2 - 0.87% Coverage

Olivia said, “I don’t want to get wet before I get to school”

<Internals\\Activity Groups\\AG-F1-Maria\\Drawing session> - § 2 references coded [1.79% Coverage]

Reference 1 - 0.93% Coverage

We don’t really walk to school if it is raining unless is walk to school day,

Reference 2 - 0.86% Coverage

I don’t like wearing my waterproof jacket so if it’s raining I get wet.

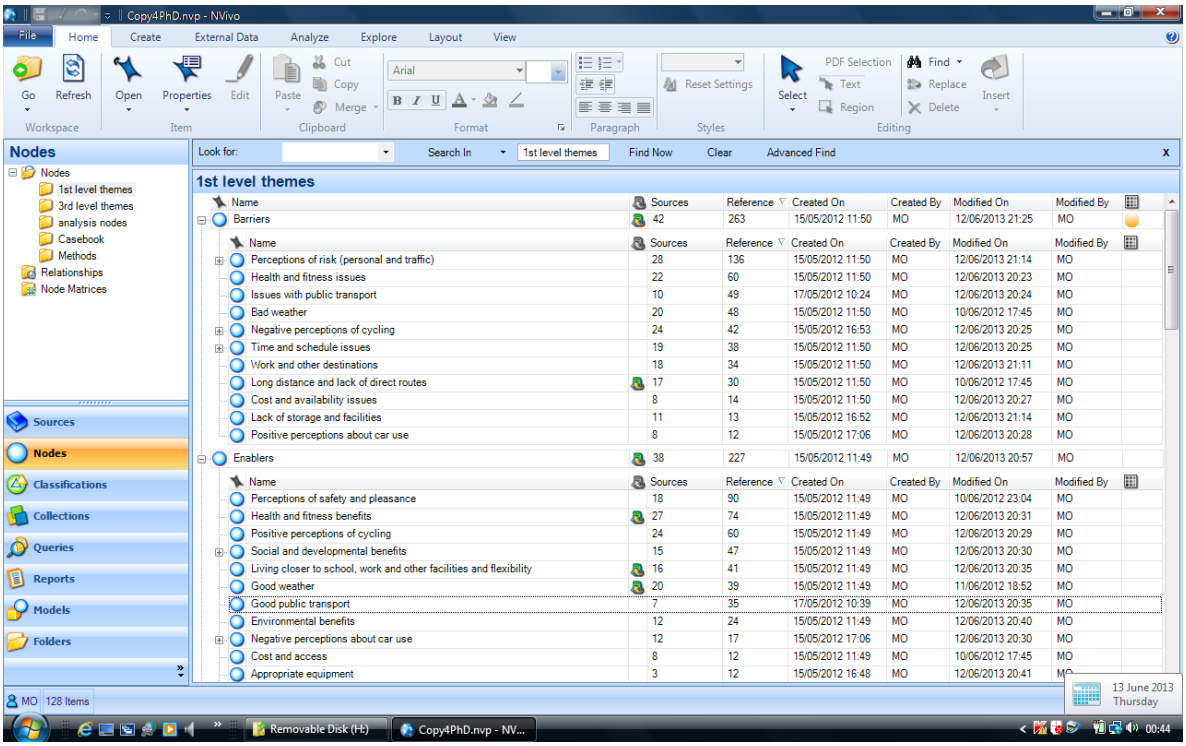
<Internals\\Activity Groups\\AG-PS2-charlestown\\Notes from Kids session_250210> - § 1 reference coded [3.64% Coverage]

Reference 1 - 3.64% Coverage

Jermaine – on Tuesdays during term time we used to cycle for one hour in the morning around school

Cawley: I don’t think we are doing it at the moment because it’s winter

At this stage of the data analysis, thematic ideas were emerging from this process with the data connected trough memos. A further round of coding to these thematic codes was performed. Emergent themes and sub themes were refined and categorised. The key barriers were categorised into 11 themes, which included a total of 70 sub themes. The most important barriers were perceptions of personal risk, traffic risk, issues and benefits of health and fitness, issues of public transport, bad weather, and negative perceptions of cycling. The key enablers were similarly categorised into 12 themes, which included a total of 63 sub themes. The most important enablers were perceptions of safety, health and safety benefits, the positive perceptions of cycling, the social and developmental benefits, living closer to school, work and other destinations:



An analysis of what would encourage active travel to school showed 6 themes with 28 sub themes, and these themes being 1) changes to the physical environment; 2) overcoming a reluctance to change; 3) changes in the approach to active travel; 4) improvements in the social environment; 5) improvements in public transport; 6) restriction in the use of private vehicles (Figure 2).

The emergent themes and sub themes as ‘barriers’, ‘enablers’ and ‘changes’ are presented in detail in chapters 5, 6 and 7 of this thesis.

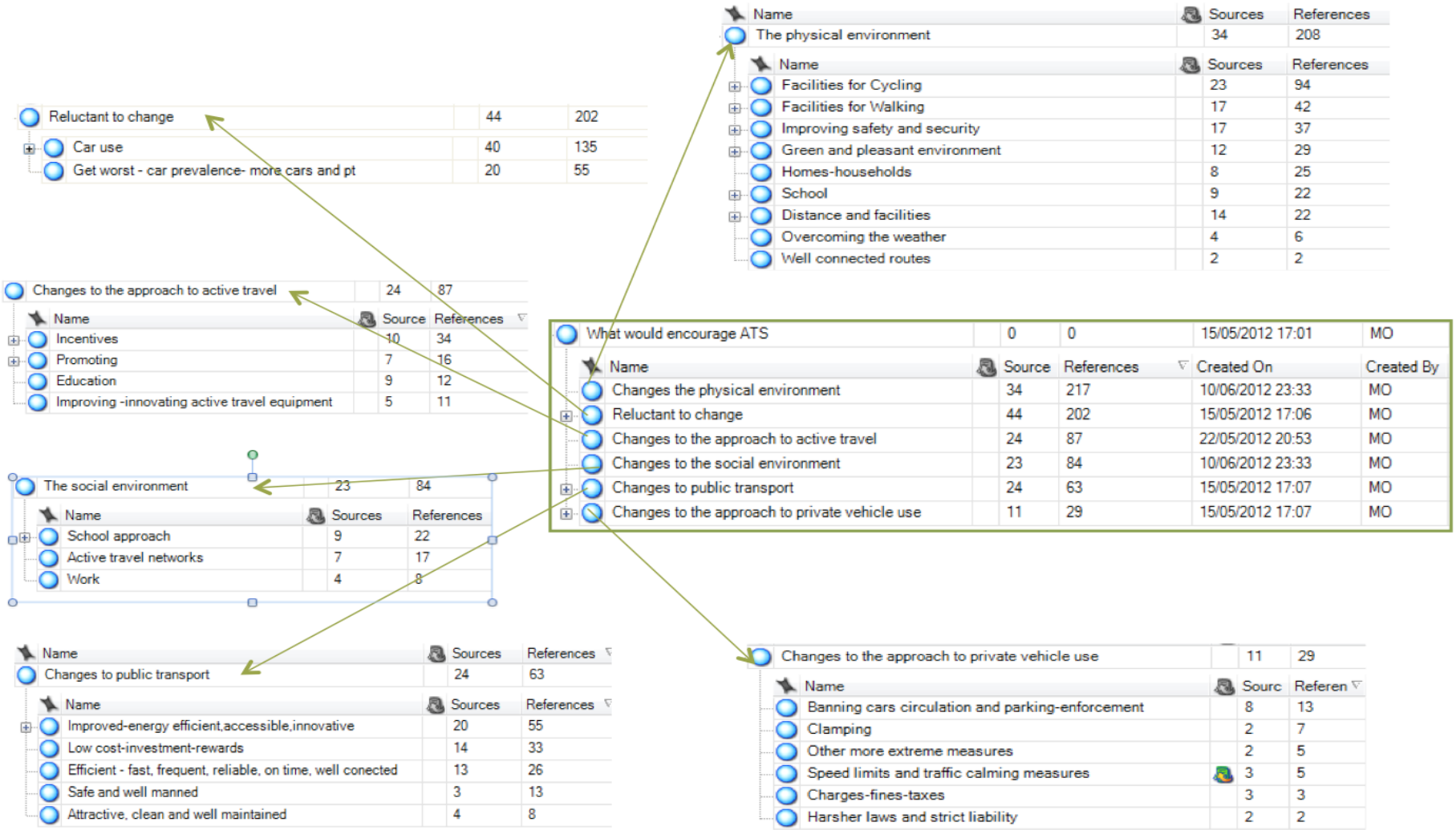


Figure 2: An analysis of what would encourage active travel to school showing 6 themes with 28 sub themes

Appendix D: Research Ethical Approval

Academic Audit and Governance Committee

Research Ethics Panel (REP)

MEMORANDUM

To **Rita Newton**

cc: Prof Mustafa Alshawi

From M Pilotti, Contracts Officer

Date **03 February 2009**

Subject: **Approval of your Project by REP**

Project Title: **Visions for the role of walking and cycling in 2030**

RGEC Reference: **RGEC08/022**

Following your responses to the committee's queries, based on the information you provided, I can confirm that they have no objections on ethical grounds to your project. This approval has the following conditions

1. That the information sheet/consent should state that the information given will be used within the research report, publications and conferences, and anonymised (with respect to the research participants and any details which might even indirectly divulge their identity)
2. The sentence in the consent form "Personal information as well as the contents of the discussion will be kept confidential and used only for research." is reworded to clarify that personal information will be kept confidential and that any reporting will be anonymised as per above.

If there are any changes to the project and/or its methodology, please inform the committee as soon as possible.

Regards,

pp T. Connors

Max Pilotti
Contracts Officer
MP/JH

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